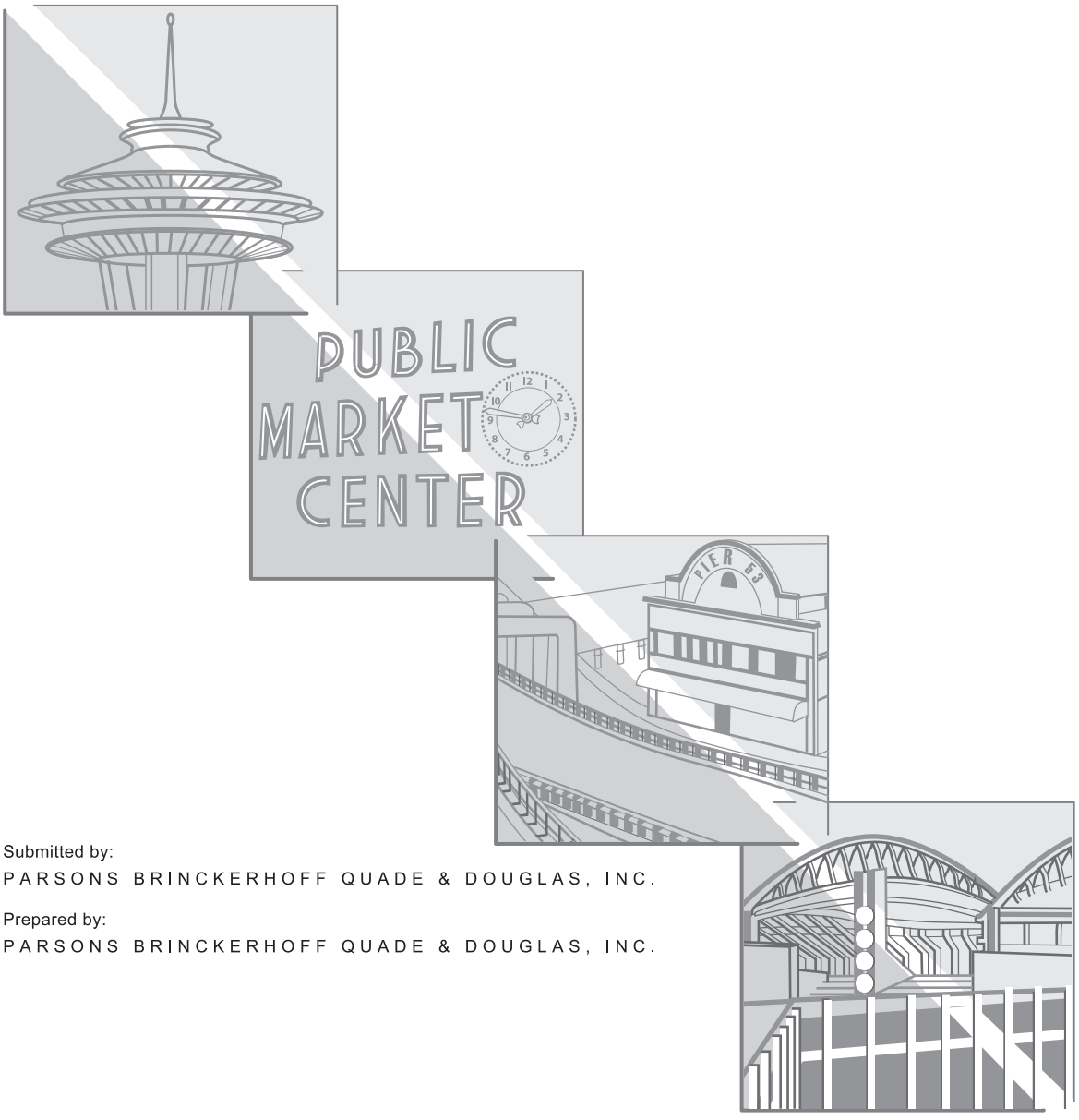
SR 99: ALASKAN WAY VIADUCT & SEAWALL REPLACEMENT PROJECT

Supplemental Draft Environmental Impact Statement

APPENDIX I

Social Resources Technical Memorandum



Submitted by:

PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC.

Prepared by:

PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC.

JULY 2006

U.S. Department of Transportation
Federal Highway Administration

Washington State
Department of Transportation

City of
Seattle

SR 99: ALASKAN WAY VIADUCT & SEAWALL REPLACEMENT PROJECT

Supplemental Draft EIS
Social Resources Technical Memorandum

AGREEMENT NO. Y-7888

FHWA-WA-EIS-04-01-DS

Submitted to:

Washington State Department of Transportation
Alaskan Way Viaduct and Seawall Replacement Project Office
999 Third Avenue, Suite 2424
Seattle, WA 98104

The SR 99: Alaskan Way Viaduct & Seawall Replacement Project is a joint effort between the Washington State Department of Transportation (WSDOT), the City of Seattle, and the Federal Highway Administration (FHWA). To conduct this project, WSDOT contracted with:

Parsons Brinckerhoff Quade & Douglas, Inc.
999 Third Avenue, Suite 2200
Seattle, WA 98104

In association with:
BERGER/ABAM Engineers Inc.
BJT Associates
David Evans and Associates, Inc.
Entech Northwest
EnviroIssues, Inc.
Harvey Parker & Associates, Inc.
HDR
Jacobs Civil Inc.
Larson Anthropological Archaeological Services Limited
Mimi Sheridan, AICP
Parametrix
Power Engineers, Inc.
Preston Gates & Ellis LLP
ROMA Design Group
RoseWater Engineering, Inc.
Shannon & Wilson, Inc.
So-Deep, Inc.
Taylor Associates, Inc.
Tom Warne and Associates, LLC
William P. Ott

This Page Intentionally Left Blank

TABLE OF CONTENTS

LIST OF EXHIBITS

ATTACHMENTS

ACRONYMS

AWV	Alaskan Way Viaduct and Seawall Replacement
BNSF	Burlington Northern Santa Fe Railway Company
EIS	environmental impact statement
SIG	Seattle International Gateway
SODO	South of Downtown
SR	State Route
WSDOT	Washington State Department of Transportation

GLOSSARY

Block Group	A subdivision of a census tract, a block group is the smallest geographic unit for which the Census Bureau tabulates sample data.
Census	The Census Bureau takes the census of population and housing in years ending in zero. The census form includes both a short form (100% survey) and a long form (sample survey of one in six households).
Census Tract	This is a small, relatively permanent statistical subdivision for presenting data. Census tract boundaries normally follow visible features, but may follow governmental unit boundaries or other nonvisible features. Census tracts average about 4,000 inhabitants.
Hispanic/Latino	A self-designated classification for people whose origins are from Spain, the Spanish-speaking countries of Central or South America, the Caribbean, or those identifying themselves generally as Spanish, Spanish-American, etc. Origin is viewed as ancestry, nationality, or country of birth of the person or person's parents or ancestors. Hispanic/Latino persons may be of any race, White and Non-White (Persons of Color).
Median	A value in an ordered set of values below and above which there is an equal number of values.
Race	Race is a self-identification characteristic of population and in 2000 included White and Non-White (Persons of Color). Non-White includes Black or African-American alone, American Indian or Alaska Native alone, Asian alone, Native Hawaiian or other Pacific Islander alone, some other race alone, or a mixture of two or more races. Non-White can include persons of Hispanic/Latino heritage. Some Hispanic/Latinos, however, are White.
Social Resources	Social elements of the environment, including population, housing, community facilities, religious institutions, social and employment services, cultural and social institutions, government institutions, military installations, and neighborhood cohesion.

This Page Intentionally Left Blank

PREFACE

The technical appendices present the detailed analyses of existing conditions and predicted effects of each alternative. The results of these analyses are summarized and presented in the main text of the Supplemental Draft Environmental Impact Statement (EIS).

The Supplemental Draft EIS appendices are intended to add new information and updated analyses to those provided in the Draft EIS, published in March 2004. Information that has not changed since then is not repeated in these appendices. Therefore, to get a complete understanding of the project area conditions and projected effects, you may wish to refer to the appendices that were published with the Draft EIS. These are included on a CD in the Supplemental Draft EIS. To make it easier to understand where there is new information or analyses, the supplemental appendices present information in the same order as it was presented in the Draft EIS appendices.

The Supplemental Draft EIS and the technical appendices evaluate the effects of three construction plans: the shorter plan, the intermediate plan, and the longer plan. These plans vary in how long SR 99 would be completely closed, in how long the periodic closures may be, and in the total construction duration. For the purposes of the analyses in the technical appendices, two construction plans are evaluated with the Tunnel Alternative and one plan is evaluated with the Elevated Structure Alternative. However, each alternative could be built with any of the three plans. The construction durations and the sequencing would not be the same for a particular construction plan if paired with a different alternative; however, the effects would be within the ranges presented by the analyses.

There are several differences in how the information is presented between the main text of the Supplemental Draft EIS and how it is presented in these appendices. The Supplemental Draft EIS text refers to possible variations within the alternatives as "choices" while these appendices use the term "options." (For example, Reconfigured Whatcom Railyard versus Relocated Whatcom Railyard is referred to as a design choice in the Supplemental Draft EIS and as an option in the appendices.) In either case, the intent is to describe the various configurations that could be selected and the effects for each design.

One design choice in particular is handled very differently between the Supplemental Draft EIS text and the technical appendices. For the Tunnel Alternative in the central waterfront area, there is a choice between a stacked tunnel alignment and a side-by-side tunnel alignment. In the appendices, to simplify the discussion, these two alignments, as well as the Elevated Structure

Alternative, are each paired with a different set of options throughout the corridor and presented as complete sets that are evaluated separately. The Supplemental Draft EIS text communicates this information differently by describing one Tunnel Alternative and one Elevated Structure Alternative and evaluating the effects of the different design choices (or mix-and-match components) separately. While it may appear that there are three alternatives analyzed in the appendices and two in the Supplemental Draft EIS text, there are in fact only two alternatives. Each alternative has many potential components or design choices that can be made throughout the corridor.

The organization of the analysis of the alternatives is also a little different between the main body of the Supplemental Draft EIS and the appendices. In the Supplemental Draft EIS text, we identify two alternatives: a Tunnel Alternative and an Elevated Structure Alternative. The Supplemental Draft EIS text compares these alternatives directly by comparing effects (for example, the effects of both alternatives on water quality are presented together). The appendices present the effects of each alternative separately (for example, all of the effects of the Tunnel Alternative are presented first, followed by all of the effects of the Elevated Structure Alternative). The substance of both discussions is the same. The organization of the Supplemental Draft EIS technical appendices mirrors that of the Draft EIS appendices, allowing you to more easily find comparable information in the Draft EIS appendices.

Chapter 1 SUMMARY

This report is a supplement to the 2004 Draft Environmental Impact Statement (EIS) Appendix I, Social Resources Technical Memorandum, for the Alaskan Way Viaduct and Seawall Replacement (AWV) Project. This report only addresses changes in the affected environment or impacts to social resources identified in the earlier report. One of the important changes associated with the Supplemental Draft EIS is that only the Tunnel (Preferred) and Elevated Structure Alternatives are being evaluated. The AWV project team combined elements of the Aerial and Rebuild Alternatives evaluated in the Draft EIS (WSDOT et al. 2004) into the new Elevated Structure Alternative described and evaluated in the Supplemental Draft EIS and this memorandum. The other Build Alternatives analyzed in the Draft EIS were dropped from further consideration after the issuance of the Draft EIS.

1.1 Background

This evaluation of potential effects on social resources has been conducted due to changes in the proposed project since the publication of the Draft EIS in March 2004. Following the public comment period, the project sponsors considered the many comments submitted by government agencies, nonprofit organizations, and members of the public. In December 2004, the project proponents selected the Tunnel Alternative and the Rebuild Alternative to be carried forward. The Tunnel Alternative was selected as the Preferred Alternative. Since that time, engineering and design has been refined and updated for the Tunnel and Rebuild Alternatives. Due to the magnitude of changes in the design of the Rebuild Alternative, this alternative has been renamed the Elevated Structure Alternative. This document evaluates effects on social resources from the proposed construction and operation of the updated Tunnel Alternative and the Elevated Structure Alternative.

For both project alternatives, the roadway would require the reconfiguration or relocation of the Whatcom Railyard, rehabilitation of the Battery Street Tunnel, either a lowered or partially lowered Aurora Avenue N., and connection of local streets across Aurora Avenue N. Key changes in the Tunnel Alternative include moving the south portal of the tunnel from S. King Street to S. Dearborn Street and eliminating the ramps at Pike and Pine Streets. For the Elevated Structure Alternative, the reconstruction activities now include making the structure wider through the central waterfront to improve safety. The 2006 Supplemental Draft EIS Appendix B, Alternatives Description and Construction Methods Technical Memorandum, provides detailed information about the project alternatives.

1.2 Social Resources

This memorandum discusses the potential effects to the same types of social resources evaluated in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum. In addition, due to the interdisciplinary analysis of potential effects on social resources, especially related to neighborhood cohesion, other technical memoranda and discipline reports were reviewed as part of the analysis. These other documents include:

- Appendix A, Agency and Public Coordination
- Appendix B, Alternatives Description and Construction Methods Technical Memorandum
- Appendix C, Transportation Discipline Report
- Appendix D, Visual Quality Technical Memorandum
- Appendix F, Noise and Vibration Discipline Report
- Appendix G, Land Use and Shorelines Technical Memorandum
- Appendix H, Parks and Recreation Technical Memorandum
- Appendix J, Environmental Justice Technical Memorandum
- Appendix K, Relocations Technical Memorandum
- Appendix O, Public Services and Utilities Technical Memorandum
- Appendix P, Economics Technical Memorandum
- Appendix Q, Air Quality Discipline Report

1.3 Affected Environment

The project study area is essentially the same as evaluated in the Draft EIS. In that report, the project corridor stretched from S. Spokane Street in the industrial area of south Seattle, along the central waterfront, the Battery Street Tunnel, and north along Aurora Avenue N. The primary difference is that the project corridor expanded in length by approximately three blocks to the north on Aurora Avenue N. from Ward Street to Comstock Street. This area is primarily residential, and this change added approximately 1,000 people living within approximately two blocks of the project corridor. In addition, the southern boundary of the central section moved to the south two blocks from S. King Street to S. Dearborn Street due to the new location of the tunnel's south portal. Other small variations in the project area occurred because of slight changes in the alternatives.

The methodology for the analysis of potential operational or construction effects on social resources used in this technical memorandum is the same as the methodology used in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum. No substantial update occurred to the data describing the existing demographic characteristics of the project area. Many new residential complexes have been built and new projects have been

proposed and/or completed in the Belltown neighborhood since the original study. New field efforts to clarify the data provided new information. The general characteristics of the existing social resources have changed very little since the original research was conducted.

1.4 Alternatives

This technical memorandum for the Supplemental Draft EIS evaluates two Build Alternatives:

- Tunnel Alternative (the Preferred Alternative)
- Elevated Structure Alternative

1.4.1 Tunnel Alternative (Preferred Alternative)

The Tunnel Alternative begins in the south as an at-grade roadway in the area of S. Hanford or S. Walker Street. In the south section, there are two options under consideration:

- The Reconfigured Whatcom Railyard Option (part of the preferred alignment) would retain the existing State Route (SR) 99 in its current alignment between the Burlington Northern Santa Fe Railway Company (BNSF) Seattle International Gateway (SIG) Railyard on the east and the Whatcom Railyard to the west. A short bridge would carry SR 99 over the new tail track and connection between the railyards.
- The Relocated Whatcom Railyard Option would shift SR 99 to the west into the site of the existing Whatcom Railyard and shift the railyard to the east to occupy the existing highway right-of-way next to the BNSF SIG Railyard, avoiding the need for the bridge over the rail track.

The SR 99 roadway would have a grade-separated interchange at S. Atlantic Street and S. Royal Brougham Way (South of Downtown [SODO] Ramps) before descending into the waterfront tunnel. The location of the south tunnel portal would be near S. Dearborn Street, not S. King Street as described in the Draft EIS.

For purposes of analysis in the Supplemental Draft EIS, the updated Tunnel Alternative has two potential tunnel alignments:

- The stacked tunnel alignment (the preferred alignment)
- The side-by-side tunnel alignment

In the central section of the project corridor, the tunnel structure would become a side-by-side alignment north of Union Street and would continue either over or under Elliott and Western Avenues, depending on the option selected. With the Under Elliott and Western Option, the mainline aerial

structure would pass over the BNSF railroad tracks and enter a cut section, with Elliott and Western Avenues on bridge structures over SR 99.

With the Over Elliott and Western Option, the mainline aerial structure would pass over the BNSF railroad tracks and would provide connections similar to the existing ramps. Both options incorporate an on-ramp southbound from Elliott Avenue and an off-ramp northbound to Western Avenue.

In contrast, the Draft EIS included tunnel ramps near Pine Street connecting to the Alaskan Way surface street in the north waterfront section of the corridor. A railroad underpass (the Broad Street Underpass) connected Broad Street to Elliott Avenue. The downtown access provided by the Pine Street ramps is replaced by the Elliott and Western ramps.

North of Pine Street, the updated Tunnel Alternative has two tunnel lid options proposed:

- The Steinbrueck Park Lid would run from Pine Street to the north end of Victor Steinbrueck Park and would be approximately 560 feet in length. The Steinbrueck Park Lid would cover the entire width of the roadway (approximately 120 to 140 feet, but the width varies).
- The Steinbrueck Park Walkway would consist of two different structures. The structure would cover the entire width of the roadway (approximately 120 feet, but the width varies) starting at about Pine Street and extending north for about 200 feet. It would then extend as a 20-foot-wide pedestrian walkway about 430 feet to the north end of Steinbrueck Park. The walkway would be east of and elevated above the level of the SR 99 roadway.

The roadway would have two lanes in each direction through the Battery Street Tunnel. The vertical clearance of the Battery Street Tunnel would be increased to 16.5 feet and fire/life safety improvements would be made. An option for the Battery Street Tunnel would widen the curves at both tunnel portals.

North of the Battery Street Tunnel, the Partially Lowered Aurora Option (part of the preferred alignment) would provide improvements from the north end of the Battery Street Tunnel to Aloha Street. Overpasses would be built over Aurora Avenue N. at Thomas and Harrison Streets, Broad Street would be closed, and the Mercer Street underpass would be widened. The Lowered Aurora Option would widen both curves of the Battery Street Tunnel and extend road improvements north to almost Comstock Street—an additional three blocks. This option would include five local streets crossing over Aurora Avenue N. at Thomas, Harrison, Republican, Mercer, and Roy Streets.

1.4.2 Elevated Structure Alternative

The Elevated Structure Alternative would begin at the south with the same Whatcom Railyard options as described above for the Tunnel Alternative. In the central section, the existing aerial structure would be replaced with a rebuilt, double-level aerial structure, which would be wider than the Rebuild Alternative evaluated in the Draft EIS, but not quite as wide as the Aerial Alternative. Ramps would be rebuilt at Columbia and Seneca Streets and Western and Elliott Avenues. There would be no lid structure to connect Steinbrueck Park to the waterfront. The Battery Street Tunnel improvements and Partially Lowered Aurora would be the same as described for the Tunnel Alternative.

1.5 Impacts and Benefits

The focus of the analysis presented in this technical memorandum has been to assess the potential operational and construction effects (adverse and beneficial) on social resources resulting from the updated Tunnel and Elevated Structure Alternatives. The potential effects for the updated Tunnel and Elevated Structure Alternatives are not comparable to those described for the Tunnel and Rebuild Alternatives, respectively, in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

The long-term operational effects of the updated Tunnel and Elevated Structure Alternatives result in fewer acquisitions of social resources compared to the Tunnel and Rebuild Alternatives described in the Draft EIS. Exhibit 1-1 lists the social resources affected by right-of-way acquisitions. The U.S. Coast Guard office building and Museum of the Northwest would be displaced due to acquisition of a portion of Pier 36. The relative lack of social resources in the project corridor in the central section means that the effects of the alternatives are nearly the same for the Tunnel and Elevated Structure Alternatives.

However, the proposed Partially Lowered Aurora and Lowered Aurora Options in the north section would generally result in increased adverse effects on social resources compared to impacts described in the Draft EIS. These occur because of changed design and proximity to additional residential neighborhoods adjacent to the project corridor.

Exhibit 1-1. Social Resources Affected by Parcel Acquisition

Property Use	Tunnel Alternative		Elevated Structure Alternative	
	Stacked Tunnel Reconfigured Whatcom Railyard[1]	Side-by-Side Tunnel Relocated Whatcom Railyard[2]	Reconfigured Whatcom Railyard[1]	Relocated Whatcom Railyard[1]
Housing				
Mixed-Use Building (1 unit)	Acquisition[3]	Acquisition	Acquisition	Acquisition
Subsidized Housing (8 units)		Acquisition		
Apartment Building (9 units)		Partial[4]		
Apartment Building (20 units)		Partial		
Community Facilities				
Professional School		Acquisition		
Religious Institutions				
Church	Partial	Acquisition	Partial	Partial
Church (auxiliary building)		Acquisition		
Social and Employment Services[5]				
Social Service Agency	Acquisition	Acquisition		
Cultural and Social Institutions				
Pier 36 (with relocation of the U.S. Coast Guard Museum of the Northwest)[6]	Partial	Partial	Partial	Partial
Government Institutions				
Pier 36 (with relocation of the U.S. Coast Guard Office Bldg.)	Partial	Partial	Partial	Partial
Colman Dock			Partial	Partial
Fire Station No. 2	Modify[7]		Modify	Modify
Total Properties Affected	**6 properties**	**10 properties**	**6 properties**	**6 properties**

[1] The Tunnel Alternative with the Reconfigured Whatcom Railyard Option and the Elevated Structure Alternative with either Whatcom Railyard option include the Partially Lowered Aurora Option for improvements north of the Battery Street Tunnel.

[2] The Tunnel Alternative with the Relocated Whatcom Railyard Option includes the Lowered Aurora Option.

[3] Acquisition is the purchase of both land and buildings with relocation of tenants.

[4] Partial means acquisition of land only.

[5] The social and employment services list of affected properties does not include CASA Latina because the agency plans to move to a new location in the near future.

[6] Relocation only refers to building tenants that are social resources.

[7] Modify means that the building needs to be structurally modified because of the construction activities, and the occupants may or may not need to temporarily relocate during the construction period.

In the north section, the Tunnel and Elevated Structure Alternatives would require the acquisition of the first half block of several city blocks on the west side of Aurora Avenue N. For the Partially Lowered Aurora Option, these effects would extend north to Mercer Street, but the effects for the Lowered Aurora Option would extend an additional four blocks to Prospect Street. These options would require the acquisition of several educational, religious, residential, and social service agency properties. No cultural or government institutions would be affected in the north section. The Tunnel and Elevated Structure Alternatives would require the acquisition of a maximum of up to four social resources. For comparison, only one of these social resources would be affected by property acquisition under the Draft EIS alternatives.

The proposed reconnection of the local streets over Aurora Avenue N., however, would be beneficial to the Uptown (Lower Queen Anne) and South Lake Union neighborhoods. Considering there are currently only two roadway crossings under Aurora Avenue N. now (Broad and Mercer Streets), the construction of two new bridges to reconnect Thomas and Harrison Streets and closure of Broad Street would improve linkages overall for vehicles, transit, pedestrians, and bicyclists in this neighborhood. Similarly, the residents of the Uptown (Lower Queen Anne) neighborhood on the west side of Aurora Avenue N. would be able to travel easily to the many amenities of the South Lake Union neighborhood. Construction of cul-de-sacs on John, Valley, and Aloha Streets where they intersect Aurora Avenue N. would prevent nonlocal traffic from cutting through the neighborhood. Together, these changes would result in improved long-term neighborhood cohesion in the Uptown (Lower Queen Anne) and South Lake Union neighborhoods.

1. The updated construction plans for the Tunnel and Elevated Structure Alternatives would result in fewer impacts on affected neighborhoods. Most importantly, the construction duration for the Tunnel Alternative is several years shorter than the Draft EIS Tunnel Alternative. The construction period for the Rebuild and Tunnel Alternatives in the Draft EIS was 7.5 to 9 years, respectively, exclusive of the initial 18 months of utility relocations (i.e., 9 to 10.5 years including utility relocations). The construction periods for the Tunnel and Elevated Structure Alternatives evaluated in this technical memorandum range from 7 to 10 years, including 30 months of utility relocations. The Supplemental Draft EIS construction plans for the Tunnel Alternative assume that the project corridor would experience either periodic or complete closures. In contrast, only one construction approach that considered brief closures was evaluated in the Draft EIS, whereas the Supplemental Draft EIS evaluates three construction plans.

2. The construction period for the Elevated Structure Alternative, however, would decrease by only 6 months. This is primarily due to updated design information that results in an additional 12 months necessary for utility relocations.

Because the construction duration still extends over several years, project area residents, business owners, and employees would perceive the temporary effects on social resources as being nearly permanent. The key construction effects for adjacent nonresidential social resources would be related to access, especially for social resources facing the project construction corridor. Workers need access to the buildings. Clients of social and community services need access. Arts enthusiasts in the metropolitan region need access to cultural and social institutions. Residents need access to government services. Similar to businesses, restricted access could affect the delivery of goods or supplies. Religious institutions located within approximately two blocks of the project corridor would be affected by noise impacts that disrupt quiet times during services reserved for prayer or contemplation. Special event attendance at the stadiums in the south section as well as the Seattle Center in the north section would be affected by general construction-related traffic congestion and detours.

During construction, both the Tunnel and Elevated Structure Alternatives would require local detours and lane closures on Alaskan Way surface street and other streets adjacent to the AWV Corridor. These impacts are expected to be of a localized nature. These include detours on First Avenue S., Broad Street, and other north-south downtown arterials that would serve as alternate routes. To some degree, these traffic detours would expand the impact area where social resources would be affected during construction. The proposed First Avenue S. Detour and the Broad Street Detour (used with the Elevated Structure Alternative) would affect adjacent surrounding neighborhoods. Adjacent residential areas would be affected by increased nighttime noise and potential light and glare.

The substantial effects on social resources, especially during the construction period, would require implementation of a variety of mitigation measures. Those described in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum, should meet the needs to avoid, reduce, and minimize the potential effects. The additional adverse effects due to acquisition of social resources properties in the Aurora Avenue N. corridor increase the need to provide mitigation measures to help these displaced property owners to find replacement properties, including opportunities for these property owners to remain in their existing neighborhoods. Mitigation measures described in the 2006 Supplemental Draft EIS Appendix K, Relocations Technical

Memorandum, and Appendix P, Economics Technical Memorandum, would also apply to many social resources.

1.6 Primary Changes in the Analysis Since the Draft EIS

The following is a short list of key differences in the effects of the updated Tunnel and Elevated Structure Alternatives compared to the effects of the Tunnel and Rebuild Alternatives, respectively, evaluated in the Draft EIS.

- The project corridor is about three blocks longer than evaluated in the Draft EIS, with some additional residential uses affected by construction and operation impacts.
- The additional data and analysis related to property acquisitions have shown that new impacts would occur, especially along the south waterfront. In particular, the U.S. Coast Guard office building as well as the Museum of the Northwest would be displaced from Pier 36.
- The elimination of the Pine Street ramps from the Tunnel Alternative evaluated in the Draft EIS has substantially reduced potential adverse effects on social resources in the north waterfront section of the project corridor during both construction and operation. Traffic would no longer enter and exit the waterfront tunnel at this location, and the associated traffic congestion, air, and noise adverse effects have been eliminated along Alaskan Way surface street north of Pine Street.
- The design of the Rebuild Alternative in the Draft EIS did not include any improvements to either the Battery Street Tunnel or Aurora Avenue N. The design of the Elevated Structure Alternative expands the area and number of social resources affected.
- Despite the slightly longer project corridor and the change in design for the updated Tunnel and Elevated Structure Alternatives, the overall number of social resources affected by full property acquisitions has decreased.
- There are two options for improvements north of the Battery Street Tunnel. The Lowered Aurora Option is similar to the improvements proposed under the Aerial Alternative in the Draft EIS, which included five crossings. The Partially Lowered Aurora Option would provided three street crossings. Mercer Street would cross under Aurora and two new bridges would be constructed over Aurora Avenue N. at Thomas and Harrison Streets for a total of three crossings. The Partially Lowered Aurora Option would only slightly reduce access to and from the Uptown (Lower Queen Anne) and South Lake Union neighborhoods compared to the Draft EIS, although it is still an improvement compared to current conditions.

- With the Partially Lowered Aurora Option, the addition of cul-de-sacs on three local streets (Valley, John, and Aloha Streets) where they intersect Aurora Avenue N. would increase neighborhood cohesion due to decreases in nonlocal traffic traveling through the neighborhood. The Lowered Aurora Option would add cul-de-sacs on four local streets (Valley, John, Aloha, and Ward Streets).

Chapter 2 METHODOLOGY

The methodology used in the analysis in this technical memorandum has not changed since the publication of the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum. The organization of this particular document generally follows the organization as the Draft EIS Appendix I, which is described below in Section 2.6.

2.1 Regulatory Overview

Please refer to Section 2.1 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

2.2 Use of Terms

Please refer to Section 2.2 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

2.3 Data and Information

Please refer to Section 2.3 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

The study area encompasses up to five blocks to either side of the project corridor. The project corridor in the Draft EIS extended from S. Spokane Street to Ward Street. The study area included the construction and operational effects of the five Build Alternatives evaluated in the Draft EIS.

The study area used in this technical memorandum has changed due to updated design of the Tunnel and Elevated Structure Alternatives. The study area generally follows the same project corridor but has been lengthened about three blocks in the north. The project limits in the south remain at S. Spokane Street, but in the north, the construction limits have been extended three blocks north to Comstock Street. The width of the study area remains up to five blocks on either side of the project corridor, which continues to capture the construction and operational effects of the Tunnel and Elevated Structure Alternatives.

A field survey was conducted to assess social resources located in the area between Ward Street and Comstock Street and from Nob Hill Avenue N. to the shoreline of Lake Union. Particular attention was given to the adjacent two blocks, as this area would sustain most of the air, noise, light, and glare construction effects.

Because of these changes, the exhibits showing these social resources were updated. Arrows denoting the boundary of the central section were moved

south from S. King Street to S. Dearborn Street. Symbols were added to show the social resources in the study area between Ward Street and Comstock Street (see Exhibit 4-4). In addition, the exhibit showing social resources at the Seattle Center was corrected to show the location of the Pacific Northwest Ballet School on Mercer Street.

2.4 Census Data Analysis

Please refer to Section 2.4 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

Substantial analysis of census data for the study area was presented in the 2004 Draft EIS Appendix I to describe the affected environment for social resources. In that report, the census tract block groups that most closely represented the same geographic area as the study area were analyzed. Due to the size of some census tract block groups, however, portions of the study area were not included and some areas outside of the study area were included. The objective was to select census tract block groups that best represented the study area.

However, the study area for this report is larger than the study area evaluated in the 2004 Draft EIS Appendix I. The study area was expanded to capture the three additional city blocks of the project corridor between Ward Street and Comstock Street. We reviewed maps of census tract block groups to assess whether to incorporate data from the additional census tract block groups. Portions of two large block groups were identified in the expanded study area. One of the block groups encompasses an area along the shoreline of Lake Union extending more than 0.75 mile beyond the north terminus of the project corridor. Similarly, the project corridor only extended several city blocks into the other large census tract block group. Moreover, the field survey findings showed that the expanded project area was similar to those block groups immediately to the south, which were already included in the study area. Because the project expansion was only three city blocks and these two census tract block groups encompass areas substantially beyond the project corridor, the data from the two census tract block groups were not incorporated into the analysis of this technical memorandum.

2.5 Impact Assessment

Please refer to Section 2.5 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

In addition, the impact analysis did incorporate the additional residential area in the north section between Ward and Comstock Streets. A field survey was conducted to count residential structures and dwelling units in the expanded project corridor. The residents were added to the estimated size of the

residential population living within two city blocks and adjacent to the project corridor (see Section 6.1.1 in this technical memorandum). This step ensured consistency with the methodology used for impact assessment in the Draft EIS.

Information also was obtained to provide context for potential long-term displacement of businesses, employment, and parking spaces and effect on neighborhood cohesion due to the operation of the project alternatives. The smallest geographic area for published data on businesses and employment is zip codes. The U.S. Bureau of the Census publishes annual data on the total number of businesses and employees located within zip codes. The most recent data were published for 2003. The data were obtained for the following Seattle downtown zip codes: 98101, 98104, 98109, 98121, and 98134. Together, these zip codes approximate an area slightly larger than the project area. Zip code 98134 was used to represent the south section of the project corridor, though it encompasses the area south of S. Dearborn Street to include the south Seattle industrial area and portions of Georgetown. Zip codes 98101 and 98104 were used to represent the central section, though these zip codes are bounded by the waterfront, Virginia Street, Minor Avenue, I-5, and S. Dearborn Street. Zip codes 98109 and 98121 were used to represent the north section, though they encompass a portion of the Belltown, Uptown (Lower Queen Anne), and Queen Anne Hill neighborhoods. Exhibit 2-1 below lists the 2003 total number of businesses and employment for each section of the project corridor. This information will be used later in the impact analysis to assess the significance of the potential displacement of businesses and employment from the project alternatives.

Exhibit 2-1. Total Businesses and Employment, 2003

Corridor Section	Zip Code	Businesses	Employment
South	98134	829	24,261
Subtotal		***829***	***24,261***
Central	98101	2,858	65,790
	98104	1,242	23,935
Subtotal		***4,100***	***89,725***
North	98109	1,495	30,252
	98121	1,101	22,508
Subtotal		***2,596***	***52,760***
Total		**7,525**	**166,746**

Note: No data were collected for the north waterfront section, as there would be no property acquisitions for any of the project alternatives in that section.
Source: U.S. Bureau of the Census 2003.

In 2004, the Puget Sound Regional Council published an inventory of parking spaces available along the project corridor in downtown Seattle (PSRC 2004). The published data were collected only for nonresidential off-street parking spaces, which is an estimated 80 percent of all parking (Heffron Transportation 2002). Of this parking, more than 87 percent is pay parking for business customers, employees, and general use. Particular zones were selected to best represent the project corridor sections, but in some cases the boundaries extend beyond and in other cases do not include portions of the project corridor.

Exhibit 2-2 shows the breakdown of available parking by district and section of the project corridor. This information was used to assess the significance of the displacement of parking due to project construction. The exclusion of residential data and the fact that the boundaries do not exactly match the boundaries of the project corridor sections, however, mean that the data are most helpful in providing the rough magnitude of total parking available and do not represent the actual number of total parking spaces available in each corridor section.

Exhibit 2-2. Total Off-Street Parking, 2004

Corridor Section	Parking Zone	Parking Spaces	Utilization
South	1	5,801	33%
Subtotal		***5,801***	***33%***
Central	3	1,723	73%
	4	6,840	68%
	5	4,631	75%
	6	1,515	66%
	7	6,786	74%
	10	1,221	68%
Subtotal		***22,716***	***72%***
North Waterfront	9	4,002	62%
Subtotal		***4,002***	***62%***
North	11	1,740	67%
	12	5,392	56%
	18	5,561	33%
	19	6,158	51%
Subtotal		***20,072***	***50%***
Total		**51,370**	**58%**

Note: Utilization percentages have been rounded.
Source: PSRC 2004.

2.6 Document Organization

This technical memorandum consists of 10 chapters and an attachment. Following this chapter on methodology is Chapter 3, which briefly describes the additional public outreach and public involvement activities that have occurred since the publication of the Draft EIS in March 2004. Chapter 4 provides a detailed description of social resources of the project study area, including the expanded area. Potential operational and construction effects (both adverse and beneficial) of the Tunnel and Elevated Structure Alternatives on social resources are assessed in Chapters 5 and 6, respectively. Secondary and cumulative effects of the two alternatives are discussed in Chapter 7. Operational and construction mitigation measures are recommended in Chapters 8 and 9. Chapter 10 lists new references consulted for this technical memorandum. Attachment A is a series of updated street maps of the project study area and beyond.

This Page Intentionally Left Blank

Chapter 3 STUDIES AND COORDINATION

The analysis contained in this technical memorandum is based on other studies and reports, as well as coordination with local and state government agencies, nonprofit organizations, and members of the public. The following sections describe the studies, coordination efforts, and public involvement activities that contributed to the preparation of this technical memorandum.

3.1 Studies

Please refer to Section 3.1 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

Due to the interdisciplinary context of the assessment of social effects, many other technical memoranda and discipline reports prepared for the AWV Project were consulted in preparation of this technical memorandum. In particular, the following project documents prepared to support the Supplemental Draft EIS were reviewed:

- Appendix A, Agency and Public Coordination
- Appendix B, Alternatives Description and Construction Methods Technical Memorandum
- Appendix C, Transportation Discipline Report
- Appendix D, Visual Quality Technical Memorandum
- Appendix F, Noise and Vibration Discipline Report
- Appendix G, Land Use and Shorelines Technical Memorandum
- Appendix H, Parks and Recreation Technical Memorandum
- Appendix J, Environmental Justice Technical Memorandum
- Appendix K, Relocations Technical Memorandum
- Appendix O, Public Services and Utilities Technical Memorandum
- Appendix P, Economics Technical Memorandum
- Appendix Q, Air Quality Discipline Report

A list of new references used to prepare this technical memorandum is contained in Chapter 10.

3.2 Coordination

Please refer to Section 3.2 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

In addition, a new series of meetings and phone calls were conducted specifically with community and social services agencies located in close proximity to the project corridor following the selection of the Preferred Alternative in December 2004. These contacts were part of an expanded

public outreach communication effort. The primary purpose of these contacts was to make sure the agencies understood the proposed project alternatives. In addition, the project team conducting the contacts confirmed potential concerns agencies had with the proposed project and asked how agencies would like to continue to participate in the project communication efforts. The project team conducting these contacts prepared informal notes for each contact. This technical memorandum incorporates some of this information.

3.3 Public Involvement Activities

Please refer to Section 3.3 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

Since March 2004, additional public involvement activities have been conducted for the AWV Project. The additional activities represent two very distinct efforts. In the spring of 2004, the project team held several public meetings and community briefings to allow the public to review and comment on the Draft EIS. In early spring, business outreach meetings were held with special efforts (e.g., direct mailing, emails, and phone calls) to ensure participation by minority-owned businesses. The project team considered the comments provided on the document and subsequently worked with the project proponents to update and refine the alternatives and construction plans. The Tunnel (Preferred) and Rebuild (now called Elevated Structure) Alternatives and the construction plans evaluated in this technical memorandum are the results of the updating and refining process.

Three public meetings were held in June 2005. The project team also hosted a workshop (on June 21, 2005) for businesses located outside of the project area. The purpose of these meetings was to present the updated Tunnel and Rebuild (now called Elevated Structure) Alternatives and two new construction plans: the shorter plan and the intermediate plan. To reduce construction effects, the two new construction plans would either periodically or fully close SR 99 during the construction period. These changes address the public's concern that if traffic is going to be severely affected during the construction period, then the construction period should be as short as possible. The new construction plans address this concern by reducing the construction period from 7.5 to 11 years (excluding utilities relocation) to 7 to 10 years (including 30 months of utilities relocation).

The comments received at the June 2005 meetings provided additional details regarding the public's concerns. The nature of the comments, however, greatly depended on the public interests represented at the meetings, which included (1) downtown residents, workers, or business owners; (2) residents or business owners from north of downtown; and (3) residents and business

owners from south of downtown, including West Seattle. The major comments included the following:

- Most attendees favored construction plans with shorter durations, even if it meant intense traffic disruptions.
- Most attendees supported the use of expanded transit services to keep people moving during the construction project.
- Downtown residents favored the Tunnel Alternative and the proposed pedestrian-oriented waterfront and improved pedestrian access in the South Lake Union neighborhood with construction of the lowered Aurora Avenue N.
- Downtown residents were most concerned about pedestrian access, noise levels, and congestion from traffic detours during construction.
- Residents and business owners, especially trucking businesses, located north of downtown Seattle were concerned about their ability to access or bypass downtown during the construction period, especially considering the limited number of alternate routes.
- Business owners expressed concern that short-term parking should be retained and alternate modes of transportation (e.g., streetcar and bicycle) should be improved during the construction period.
- Residents and business owners from West Seattle or other areas south of downtown were optimistic that the proposed traffic management efforts could be successful.

The 2006 Supplemental Draft EIS Appendix A, Agency and Public Coordination Technical Memorandum, provides additional information on the recent public involvement activities and comments received.

This Page Intentionally Left Blank

Chapter 4 AFFECTED ENVIRONMENT

This chapter describes the affected environment for social resources in the expanded project study area. Other topics related to social resources, particularly parks and recreation (see Appendix H), environmental justice (see Appendix J), and public services and utilities (see Appendix O) are discussed in separate technical memoranda of the Supplemental Draft EIS. See Section 3.1 for a complete listing.

4.1 Regional and Community Growth

Please refer to Section 4.1 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

4.2 Project Study Area Overview

As described in detail in Section 2.3, the project study area has been extended three blocks north of Ward Street to Comstock Street in the north end since the issuance of the 2004 Draft EIS Appendix I. To help the reader follow the analysis in the following chapters, updated exhibits from the 2004 technical memorandum are included:

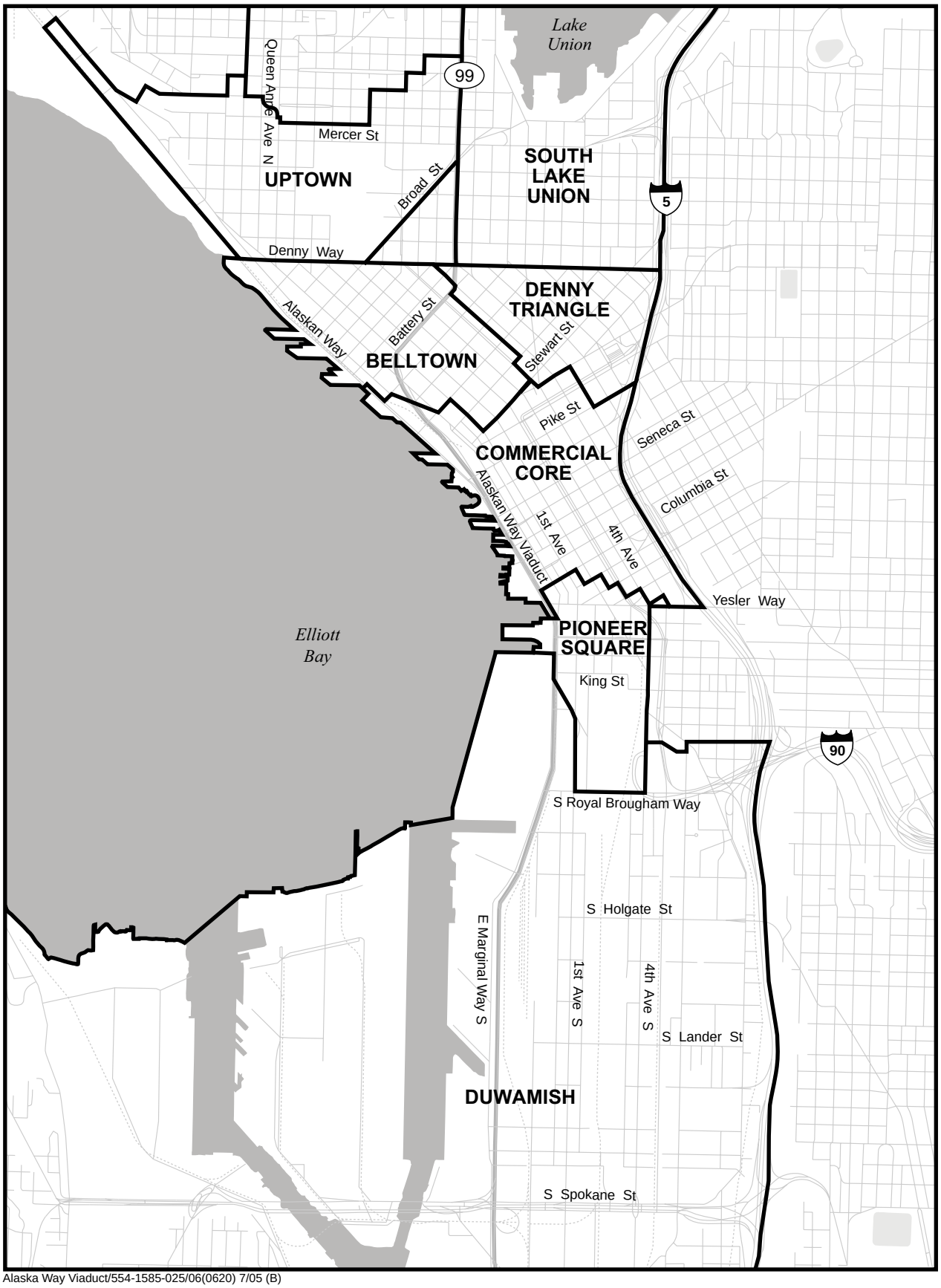
Exhibit 4-1. Map of the Neighborhoods in the Study Area

Exhibit 4-2. Map of Social Resources: South Section

Exhibit 4-3. Map of Social Resources: Central Section

Exhibit 4-4. Map of Social Resources: North Section

The expanded area has diverse land uses similar to the project area immediately to the south, but overall it is more predominantly residential. On the west side of Aurora Avenue N., land uses are primarily residential—single-family, duplexes, multi-family apartment buildings, and condominium complexes. Automobile-oriented retail commercial, multi-family residential, office, and light industrial land uses characterize the blocks between Aurora Avenue N. and Westlake Avenue N. Offices, retail uses, and marine-oriented businesses line the shore of Lake Union. Exhibit 4-4 shows the social resources in the north section, including the expanded area. This expanded area is on the edge of the Uptown (Lower Queen Anne) neighborhood, which is described in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

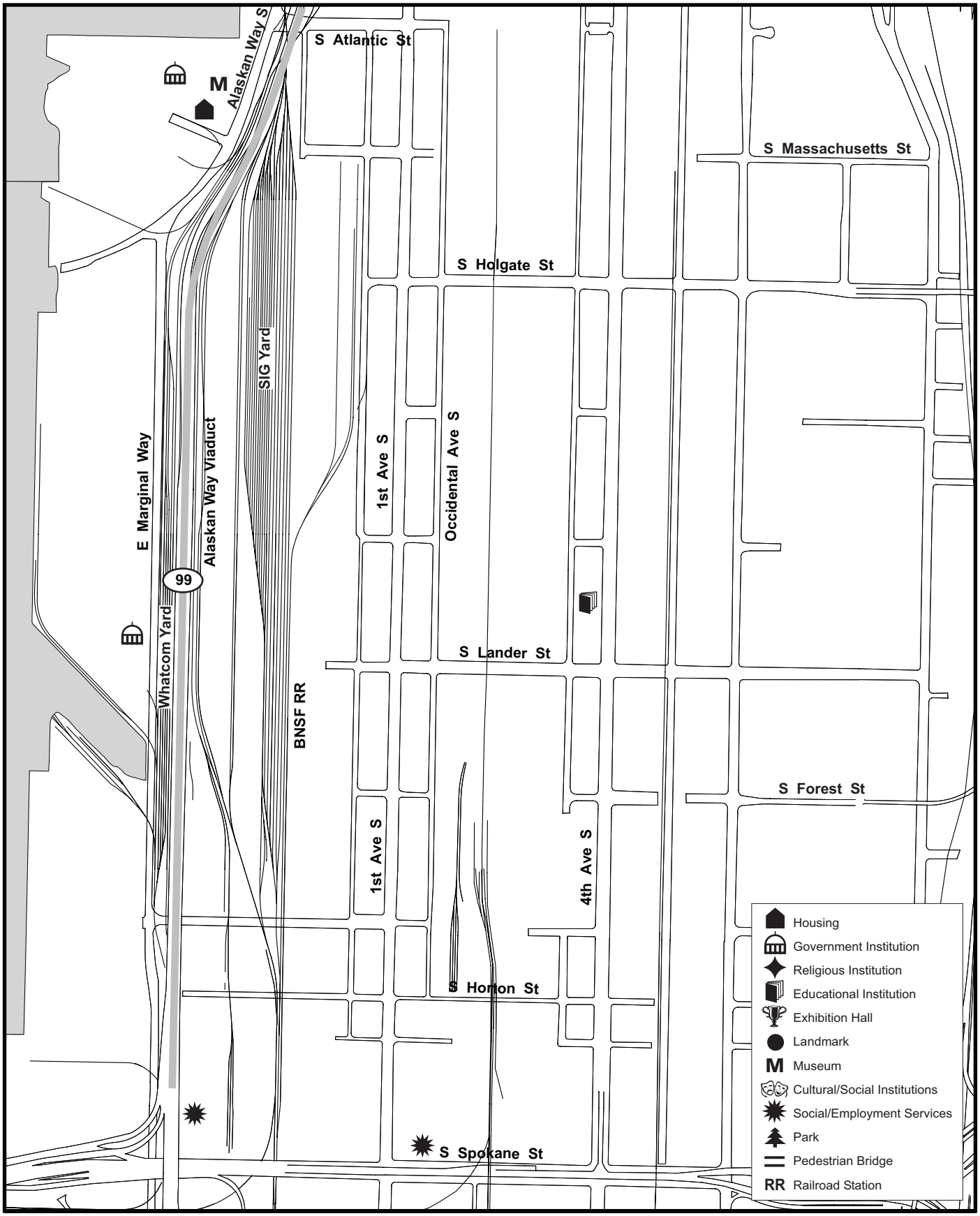


Alaska Way Viaduct/554-1585-025/06(0620) 7/05 (B)

0 2,500
SCALE IN FEET

N

Exhibit 4-1
Map of the Neighborhoods in the Study Area



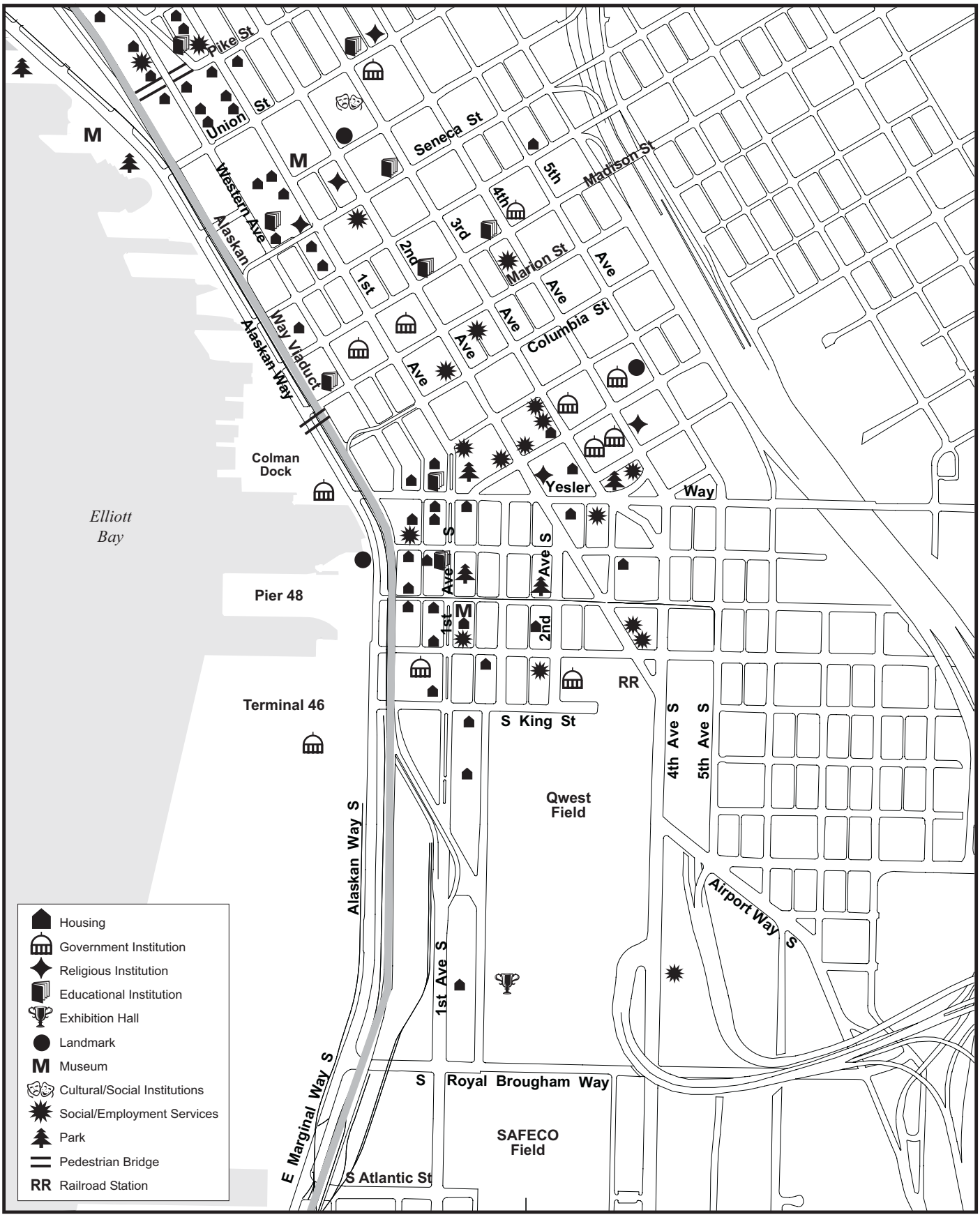
Alaskan Way Viaduct 554-1585-025/06(0620) 9/05 (B)

SCALE IN FEET

0 400 800

N

Exhibit 4-2
Map of Social Resources: South Section



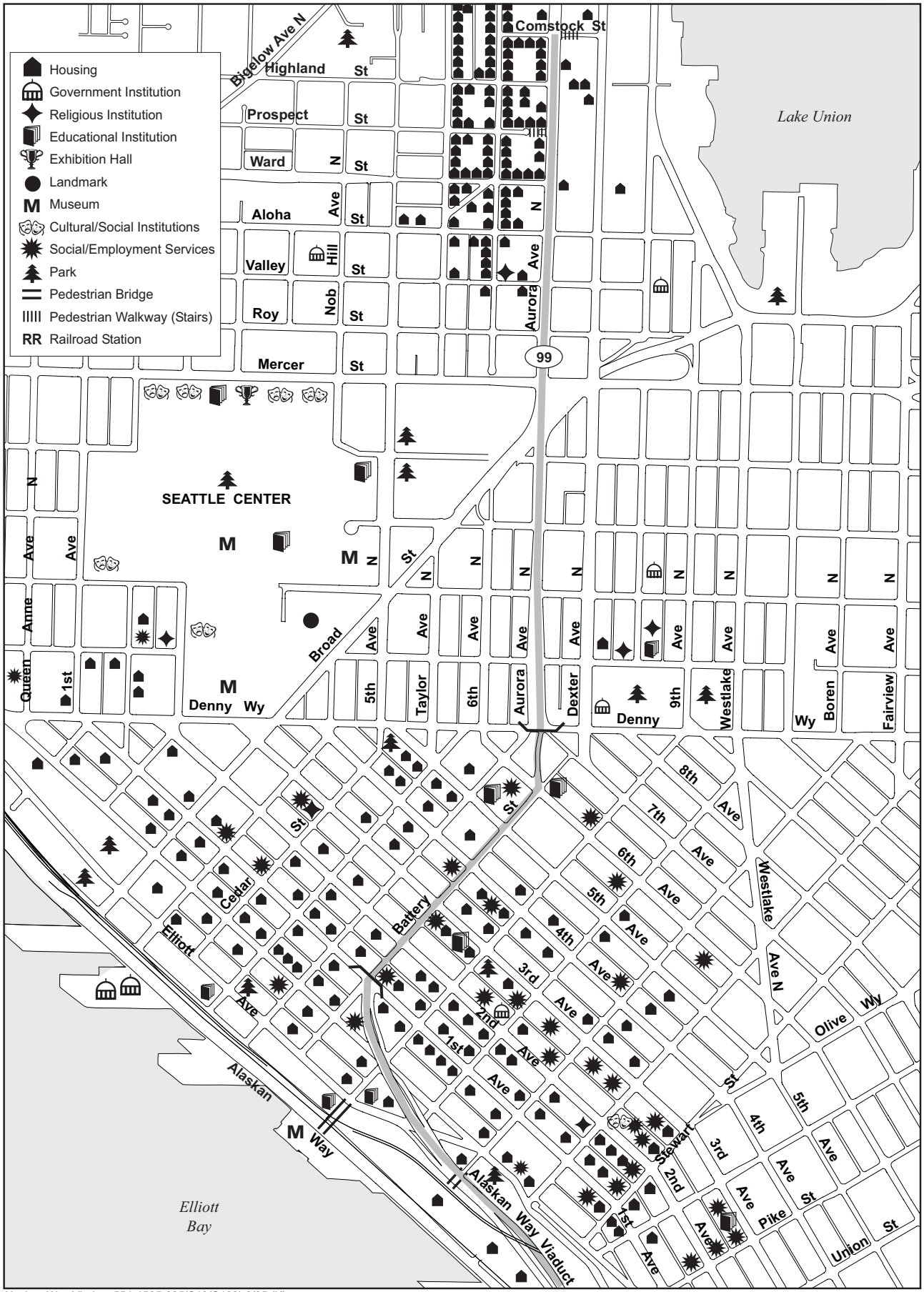
Alaskan Way Viaduct 554-1585-025/06(0620) 9/05 (B)

SCALE IN FEET

0 400 800

N

Exhibit 4-3
Map of Social Resources: Central Section



Alaskan Way Viaduct 554-1585-025/S10(S102) 9/05 (K)

SCALE IN FEET

0 425 850

N

Note to Reader: The north terminus of the project corridor has moved north three blocks, from Ward Street to Comstock Street.

Exhibit 4-4
Map of Social Resources: North Section

4.3 Population and Demographics

Please refer to Section 4.3 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum. Section 2.4 above discusses the reason no additional population and demographic analysis was prepared for this Supplemental Draft EIS technical memorandum (only three additional blocks were added to the study area).

4.4 Housing

Please refer to Section 4.4 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

During 2004 and 2005, active construction of multi-family housing has continued in the study area, especially in the Belltown and Uptown (Lower Queen Anne) neighborhoods. Residential buildings that were in the planning phase or in construction when research was conducted for the 2004 Draft EIS Appendix I have since been completed. New buildings have also started the planning and permitting process, and others are now under construction. A complete inventory has not been prepared.

New information has recently become available concerning a residential property located in the Pioneer Square neighborhood. The building is called the Boston Hotel, and there are three subsidized housing units above the ground floor office and retail space.

In addition, a change in land use is proposed for an office building located approximately one-half block from the south portal of the Battery Street Tunnel. The office building is proposed to be demolished and a new mixed-use building including 25 low-income family apartments would be constructed on the site (City of Seattle 2005; Seattle Post-Intelligencer 2005).

The primary land use in the expanded area of the project study area is residential west of Aurora Avenue N. The housing can best be characterized as medium-density housing. There are single-family residences, a large number of small housing complexes, and several very large residential complexes. The small complexes include duplexes and 10-unit residential buildings. The large complexes include several 20- to 40-unit complexes as well as two very large residential developments with over 200 units each. The multi-family buildings include both apartments and condominiums.

There is one subsidized housing property located in the expanded project study area. This is the Queen Anne Gardens apartments. It has 50 units and 37 are subsidized for low-income elderly persons (City of Seattle 2003). No special needs housing is located in the project area north of Ward Street.

4.5 Community Facilities

Please refer to Section 4.5 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

In addition, the School of Visual Concepts is a professional educational institution located in the north section of the project corridor. It was included in the discussion of potential effects but was not described in the Affected Environment chapter of the 2004 Draft EIS Appendix I. This professional training school provides classes in graphic arts, advertising, web design, and computer graphics. Classes are primarily offered in the evening.

The only community facility located in the expanded area in the north section is Bhy Kracke Park. This small neighborhood park is located at 1215 Fifth Avenue N. It is 1.5 acres in size. This hillside park includes a children's play area, picnic table, and great views of downtown Seattle.

There are no community centers or educational facilities located in the expanded portion of the study area.

4.6 Religious Institutions and Cemeteries

Please refer to Section 4.6 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum for a description of the 12 religious institutions located in the project corridor.

4.7 Social and Employment Services

Please refer to Section 4.7 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

Since the publication of the 2004 technical memorandum, there has been a change concerning CASA Latina. This social service organization provides employment and educational opportunities to Latino immigrants as well as a day labor program for men. Since 1999, the City of Seattle has earmarked about $130,000 per year to help fund the organization's programs (Seattle Times 2005a). The AWV Project team met with CASA Latina on several occasions before the issuance of the Draft EIS. The AWV Project team was informed that CASA Latina is looking for a new site (Seattle Times 2005b). For this reason, potential acquisition of the property currently leased by the agency would not be expected to displace the social service agency. (See the 2006 Supplemental Draft EIS Appendix J, Environmental Justice Technical Memorandum for more details on the AWV Project team's coordination with social service agencies and organizations.)

In addition, a new halfway house opened in August 2005 in the south section of the project study area. It is a state-operated facility for sexually violent

predators (Seattle Times 2004; Washington Department of Social and Health Services 2005).

There are no social and employment service providers located within the expanded area of the north section of the project corridor.

4.8 Cultural and Social Institutions

Please refer to Section 4.8 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

Since research was conducted for the preparation of the 2004 Draft EIS Appendix I, new information has become available concerning property on Valley Street. One of the buildings within two blocks of the project corridor is an office building that is now used as the headquarters of the Girl Scouts Totem Council. The tax status of the property changed in late 2003 to tax-exempt status due to a change in use of the property from commercial office space to office space owned and primarily used by the nonprofit organization.

There are no cultural and social institutions located in the expanded area of the project study area.

4.9 Government Institutions and National Defense Installations

Please refer to Section 4.9 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

4.10 Neighborhood Cohesion

Please refer to Section 4.10 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

The expanded area is essentially part of neighborhoods described in the 2004 Draft EIS Appendix I. That discussion and analysis provides the description of neighborhood cohesion for the project study area, including the expanded portion of the project corridor.

Chapter 5 OPERATIONAL IMPACTS AND BENEFITS

This chapter describes anticipated effects on social resources following construction of the updated Tunnel (Preferred) and Elevated Structure Alternatives. For a detailed description of the proposed project alternatives, see the 2006 Supplemental Draft EIS Appendix B, Alternatives Description and Construction Methods Technical Memorandum. Other topics included as part of an analysis of effects on social resources as defined by the Washington State Department of Transportation (WSDOT) *Environmental Procedures Manual* (March 2003) are discussed in separate Supplemental Draft EIS technical memoranda, including parks and recreation (Appendix H), environmental justice (Appendix J), and public services and utilities (Appendix O).

The first several sections of the text below comprehensively describe the anticipated adverse effects for each alternative by roadway section: south, central, north waterfront, and north. Brief qualitative statements about potential effects are provided for alternative options. Potential effects for the entire length of the proposed seawall are also described. Following these sections is a summary of the benefits of each alternative. Mitigation measures for operational effects are discussed separately in Chapter 8.

5.1 No Build Alternative

The No Build Alternative has not changed since the Draft EIS. For a description of the No Build Alternative and its impacts, please refer to Section 5.1 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

5.2 Impacts Common to the Tunnel and Elevated Structure Alternatives

Since the March 2004 publication of the Draft EIS Appendix I, Social Resources Technical Memorandum, the design process has continued. As a result, the long-term effects on social resources have changed. The issues discussed in Section 5.2 of the 2004 Draft EIS Appendix I continue to describe the general effects; however, the quantification of those effects is quite different. Exhibits 5-1 and 5-2 present long-term impacts to social resources associated with the updated project alternatives.

Exhibit 5-1 lists social resources that would be affected by either full (land and building) or partial acquisitions. It does not include properties affected by the acquisition of easements. This is a substantial change from the information contained in the Draft EIS, which assumed that all partial acquisitions would result in acquisition of buildings. The additional and more detailed engineering has improved refined acquisition data. For example, determinations were made regarding whether partial acquisitions would actually affect buildings, whether

they would be limited to land acquisition, or whether they would be limited to only temporary acquisition of easements for construction. In contrast, the Draft EIS assumed that all partial acquisitions were full acquisitions. The new methodology allows the analysis to more accurately reflect the actual impacts.

Exhibit 5-1. Social Resources Affected by Parcel Acquisition

	Tunnel Alternative		Elevated Structure Alternative	
Property Use	Stacked Tunnel Reconfigured Whatcom Railyard[1]	Side-by-Side Tunnel Relocated Whatcom Railyard[2]	Reconfigured Whatcom Railyard[1]	Relocated Whatcom Railyard[1]
Housing				
Mixed-Use Building (1 unit)	Acquisition[3]	Acquisition	Acquisition	Acquisition
Subsidized Housing (8 units)		Acquisition		
Apartment Building (9 units)		Partial[4]		
Apartment Building (20 units)		Partial		
Community Facilities				
Professional School		Acquisition		
Religious Institutions				
Church	Partial	Acquisition	Partial	Partial
Church (auxiliary building)		Acquisition		
Social and Employment Services[5]				
Social Service Agency	Acquisition	Acquisition		
Cultural and Social Institutions				
Pier 36 (with relocation of the U.S. Coast Guard Museum of the Northwest)[6]	Partial	Partial	Partial	Partial
Government Institutions				
Pier 36 (with relocation of the U.S. Coast Guard office building)	Partial	Partial	Partial	Partial
Colman Dock			Partial	Partial
Fire Station No. 2	Modify[7]		Modify	Modify
Total properties affected	**6 properties**	**10 properties**	**6 properties**	**6 properties**

[1] The Tunnel Alternative with the Reconfigured Whatcom Railyard Option and the Elevated Structure Alternative with either Whatcom Railyard option include the Partially Lowered Aurora Option for improvements north of the Battery Street Tunnel.

[2] The Tunnel Alternative with the Relocated Whatcom Railyard Option includes the Lowered Aurora Option.

[3] Acquisition is the purchase of both land and buildings with relocation of tenants.

[4] Partial means acquisition of land only.

[5] The social and employment services list of affected properties does not include CASA Latina because the agency plans to move to a new location in the near future.

[6] Relocation only refers to building tenants that are social resources.

[7] Modify means that the building needs to be structurally modified because of the construction activities, and the occupants may or may not need to temporarily relocate during the construction period.

Exhibit 5-2. Indicators of Long-term Disruption to Neighborhood Cohesion[1]

Alternative	Indicators	South Section (1.4 miles)	Central Section (1.4 miles)	North Section (1.2 miles)	Total
Tunnel (Preferred)[2]	Buildings Acquired	3	5	6	14
Stacked tunnel alignment	Social Buildings Acquired[3]	2	2	0	4
	Jobs Displaced[4]	184	163	108	455
	Parking Spaces Displaced[5]	790	834	121	1,745
Tunnel Option[6]	Buildings Acquired	6	6	17	29
Side-by-side tunnel alignment	Social Buildings Acquired	2	2	4	8
	Jobs Displaced	274	177	186	637
	Parking Spaces Displaced	790	703	283	1,776
Elevated Structure[2]	Buildings Acquired	3	4	6	13
Reconfigured Whatcom Railyard	Social Buildings Acquired	2	1	0	3
	Jobs Displaced	184	147	109	440
	Parking Spaces Displaced	597	249	121	967
Elevated Structure[2]	Buildings Acquired	6	4	6	16
Relocated Whatcom Railyard	Social Buildings Acquired	2	1	0	3
	Jobs Displaced	274	147	109	530
	Parking Spaces Displaced	597	249	121	967

[1] Indicators of long-term disruptions to neighborhood cohesion in the north waterfront section of the project corridor are not included since there would be no building acquisitions with either of the Build Alternatives. The Build Alternatives would add some parking spaces in the north waterfront section.

[2] The Tunnel Alternative with the Reconfigured Whatcom Railyard Option and the Elevated Structure Alternative with either Whatcom Railyard option include the Partially Lowered Aurora Option for improvements north of the Battery Street Tunnel.

[3] Social Buildings Acquired is the number of buildings that would be acquired that are social resources, i.e., residences, community facilities, religious institutions, social and employment services, cultural and social institutions, or government institutions.

[4] The total number of jobs in the business districts traversed by the project corridor is more than 166,000, which is the U.S. Bureau of the Census 2003 inventory for zip codes in the project area (U.S. Bureau of the Census 2003).

[5] Parking Spaces Displaced is the number of parking spaces along the project corridor that would be eliminated due to the construction of the proposed project. It includes adjacent on-street and off-street spaces. The total number of adjacent parking spaces that currently exists was estimated to be 3,176 in the south, central, and north sections of the project corridor. This number does not represent the total number of parking spaces available within the general project corridor or neighborhoods adjacent to the project corridor. The sum of the total displaced parking spaces for each alternative does not include any parking that would be displaced in the north waterfront section.

[6] The Tunnel Alternative with the Relocated Whatcom Railyard Option includes the Lowered Aurora Option.

Based on the more detailed data and analysis, as contained in Exhibit 5-1, required property acquisitions would affect very few social resources.

For both Build Alternatives, only three to eight social resources would be affected by property acquisitions along the entire length of the project corridor. The effects are minimal considering that the estimated total number of properties facing the project corridor is about 171. Secondly, neither alternative would require acquisition of cultural and social institutions or government institutions. The exception is the required relocation of the U.S. Coast Guard Museum of the Northwest and the Coast Guard offices at Pier 36. Both buildings would be acquired and the tenants would be relocated.

Exhibit 5-2 presents the effects on several indicators that represent disruptions to neighborhood cohesion. These indicators include total number of building acquisitions, acquisition of social resources, loss of jobs, and reduction in parking. Comparison of the effects for the Build Alternatives shows that 13 to 29 buildings would be acquired and only 3 to 8 of these properties are social resources. An estimated 440 to 637 jobs would be displaced due to property acquisitions. In addition, an estimated 967 to 1,776 parking spaces would be eliminated. For persons with mobility disabilities, however, this reduction in parking spaces may decrease accessibility to some destinations. Generally, the change is similar for both Build Alternatives. Some numbers appear to be quite substantial; however, the magnitude of these effects is generally quite small considering that 171 buildings face the corridor, total downtown Seattle employment exceeds 166,000 jobs (U.S. Bureau of the Census 2003), and over 51,000 parking spaces exist in the project corridor area (PSRC 2004). As a result, the long-term effect of the proposed project would not adversely affect neighborhood cohesion.

Furthermore, the Build Alternatives would likely improve neighborhood cohesion in the north section of the project corridor. Local streets would be improved to extend the street grid pattern near the east side of the Seattle Center. With the Partially Lowered Aurora Option, bridges constructed over Aurora Avenue N. at Thomas Street and Harrison Street would increase mobility for pedestrians, bicyclists, transit riders, and motorists. Overall mobility would improve between the Uptown (Lower Queen Anne) and South Lake Union neighborhoods. In addition, the planned construction of cul-de-sacs where John, Valley, and Aloha Streets intersect Aurora Avenue N. would reduce nonlocal traffic traveling through the neighborhoods. These aspects of the updated Tunnel and Elevated Structure Alternatives would benefit adjacent neighborhoods.

Please see the discussions below concerning the potential long-term effects on social resources for the two alternatives analyzed in the Supplemental Draft EIS.

5.3 Tunnel Alternative (Preferred Alternative)

The potential social effects associated with the Tunnel Alternative and its design options are evaluated below.

5.3.1 South – S. Spokane Street to S. Dearborn Street

Compared to the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum, the north boundary of the project's south section changed from S. King Street to S. Dearborn Street, four blocks to the south near the south portal of the updated Tunnel Alternative.

Reconfigured Whatcom Railyard

In the south section, the Tunnel Alternative would involve the construction of an at-grade roadway that would transition to an aerial, side-by-side structure that crosses over the tail track near S. Massachusetts Street. This bridge crossing over the rail track allows for reconfiguration of the Whatcom Railyard. The roadway would return to an at-grade configuration, and the SODO Ramps at S. Atlantic Street and S. Royal Brougham Way would be elevated over SR 99. Following construction, traffic conditions would be similar to those described for the Draft EIS Tunnel Alternative.

Population and Housing

The Tunnel Alternative would not require full or partial acquisition of any residential properties in the south section. Access to residential properties and traffic patterns in the south section of the Tunnel Alternative would generally be very similar to current conditions. The new SODO Ramps to SR 99 at S. Atlantic Street and S. Royal Brougham Way would increase traffic volumes locally. The increased traffic congestion could make it more difficult for vehicles to exit the St. Martin de Porres Shelter. Overnight visitors at the shelter, however, are transported to and from the facility by an agency van from downtown Seattle. Access to the facility by clients would not change. The new travel patterns would not cause substantial adverse effects on the few residents living in the south section.

Community Facilities

The Pacific Maritime Institute, a professional school for the maritime trade, is located at Pier 36, but some distance west of Alaskan Way S. Direct access and general travel patterns are not anticipated to change, so no adverse effects would occur.

Religious Institutions

No religious institutions are located in the south section, so there would be no long-term effects on such facilities.

Social and Employment Services

The Department of Social and Health Services (DSHS) halfway house and the Salvation Army Adult Rehabilitation Center are located several blocks from the proposed roadway improvements and would not be affected by the Tunnel Alternative.

Cultural and Social Institutions

Safeco Field, Qwest Field, the Qwest Event Center, and the U.S. Coast Guard Museum of the Northwest are located in the south section. Visitors to these facilities would likely use the proposed SODO Ramps at S. Royal Brougham Way and S. Atlantic Street. Traffic patterns and congestion areas would be different following events at these facilities, but no adverse effects are expected to affect the stadium and exhibition center facilities under the Tunnel Alternative. A portion of Pier 36 would be acquired, which would require the relocation of the U.S. Coast Guard Museum of the Northwest prior to the start of construction.

Government Institutions

The Port of Seattle cruise ship terminal at Pier 30 would be partially acquired for the stacked tunnel alignment, but the acquisition would not affect operation of the terminal. A partial acquisition of Pier 36 would also require relocation of an office building tenant, the U.S. Coast Guard.

Neighborhood Cohesion

In the south section, the Tunnel Alternative would be very similar to the existing street network and links to existing community facilities and services. There would be no adverse effects on accessibility, but the new SODO Ramps would improve access to and from the area. Property acquisition of social resources would affect several commercial and warehouse properties. A U.S. Coast Guard office building and Museum of the Northwest at Pier 36 would need to be relocated. An estimated 184 jobs would be displaced, which is a very small proportion of the over 24,000 jobs in the south section area (U.S. Bureau of the Census 2003).

Long-term, an estimated 790 parking spaces would be eliminated in the south section. Though this is a large number, it is a small proportion of the more than 5,800 parking spaces available in the area, and annual average utilization is only 33 percent (PSRC 2004). The reduction in parking spaces would not affect movement or interaction of people in the stadium area, even though few residents or retail businesses are located in the area. The demolition of the existing aerial structure in the north end of the south section for construction of the tunnel would remove a visual obstruction between the waterfront and adjacent upland land uses. This could be perceived as a

potential benefit to neighborhood cohesion. Overall, no long-term adverse effects on cohesion would occur.

Option: Relocated Whatcom Railyard

The option for the south section of the Tunnel Alternative consists of an at-grade roadway and grade-separated SODO Ramps. SR 99 and E. Marginal Way would be shifted to the west into the existing Whatcom Railyard. This would allow relocation of the tail track and Whatcom Railyard to the east side of SR 99. This option would eliminate about 790 parking spaces in the south section, the same as for the preferred alignment. An increased number of jobs would be displaced due to building acquisition. The displacement of 274 jobs, however, remains very small compared to the total employment in the south section of the project corridor.

The social resource effects of this option would be nearly the same for either option. The Relocated Whatcom Railyard Option would not affect housing, community facilities, religious institutions, or social service agencies, but would require partial acquisition of Pier 36, which would displace the U.S. Coast Guard Museum of the Northwest and the U.S. Coast Guard office building. A partial acquisition of a small portion of Terminal 30, however, is not anticipated to affect long-term operation of the cruise ship terminal.

5.3.2 Central – S. Dearborn Street to the Battery Street Tunnel

In the central section, the Tunnel Alternative has several options. The tunnel's south portal would be near S. Dearborn Street, not S. King Street as described in the Draft EIS. The tunnel would carry both directions of traffic in either a stacked or a side-by-side alignment. Neither alignment would have ramps to Columbia, Seneca, or Pike Streets, but both would have ramps to Elliott and Western Avenues and the King Street ramps in the south section. Access to the Colman Dock Ferry Terminal and vehicle holding areas are slightly different. Both of the tunnel alignments could be matched with options for crossing over the BNSF railroad tracks and crossing either over or under Elliott and Western Avenues. A lid structure (Steinbrueck Park Lid) or a partial lid structure (the Steinbrueck Park Walkway) would connect Steinbrueck Park to the central waterfront. For purposes of analysis, two combinations of options are evaluated for the central section of the Tunnel Alternative.

Stacked Tunnel Alignment, Under Elliott/Western, with Steinbrueck Park Walkway

The stacked tunnel alignment would have three lanes of traffic in each direction, and the tunnel would be a double-level structure. The alignment would transition to a side-by-side aerial structure at Union Street. The aerial structure would then pass over the BNSF rail tracks and enter a cut section,

with Elliott and Western Avenues on bridge structures above SR 99, and enter the Battery Street Tunnel. This alignment includes the Steinbrueck Park Walkway connecting Steinbrueck Park to the central waterfront. The Alaskan Way surface street would be rebuilt with bike lanes on both sides and a double track for the waterfront streetcar down the center.

Population and Housing

The construction of the stacked tunnel alignment would result in acquisition of one building with a single apartment unit.

Access to residential development and traffic patterns for the central section would be different from current conditions. Existing ramps at Columbia and Seneca Streets would not be replaced. As discussed above, the Elliott and Western Avenue ramps would be rebuilt. As described in the Draft EIS, the southbound off- and northbound on-ramp to and from Western Avenue (Battery Street ramps) would be for emergency vehicle use only. Generally, traffic congestion and noise levels along the waterfront would decrease markedly, as much of the exiting viaduct traffic would be using the underground tunnel. Traffic would increase on surface streets in the north end of the central section as traffic exits to reach downtown destinations. Traffic volumes on Elliott and Western Avenues would increase above current levels because of the lack of ramps in the central downtown business district. Because existing noise levels are high, as found in all dense urban environments, increased noise would not be substantial.

Vehicle and pedestrian access to the Bread of Life Mission and the Compass Center homeless shelters could improve due to the new SODO Ramps south of these facilities and reduced traffic volumes on Alaskan Way surface street in the immediate vicinity of these social service agencies. With no ramps at Pike Street, noise and traffic congestion would not likely degrade conditions for either pedestrians along the waterfront or residents of nearby waterfront condominium complexes.

Community Facilities

Numerous public and private educational institutions are generally located along the central section of the project corridor. General travel patterns would change due to the lack of downtown ramps. Travel routes and travel times to and from these community facilities would change, but not substantially.

Religious Institutions

The several religious institutions located in the central section are generally not located in close proximity to the project corridor. General and transit access to these facilities would change slightly because of the reduced number

of downtown ramps. Travel routes would change and travel times would lengthen, but these changes would not be substantial considering that travel to these institutions is not likely an everyday occurrence.

Social and Employment Services

There are many social and employment services located in this section of the project corridor. They meet the daily needs of low-income and disadvantaged residents in downtown Seattle. The CASA Latina Day Workers' Center is currently leasing property owned by the City of Seattle but is looking to purchase a site elsewhere. If CASA Latina cannot move in time, it would receive relocation assistance. Building acquisition also would displace the Catholic Seamen's Club. For other agencies, access to and from their downtown facility, clients, other social service agencies, and other destinations would change and travel times may increase if travel involves use of the waterfront tunnel, which has no downtown exists. Client access to these services long-term, however, would not likely change, as most arrive at service centers by transit or walking and would not likely include use of the tunnel.

Cultural and Social Institutions

Many cultural and social institutions are located in the central section, but most would not be affected by the Tunnel Alternative because they are generally located several blocks from the project corridor. With no ramps at Columbia, Seneca, or Pike Streets, traffic would need to exit to the south or north of the central downtown area to reach their destinations. Traffic routes would change, and travel times may increase. However, visits to these institutions are not an everyday occurrence and may occur during nonpeak times. Therefore, these effects would not likely be considered substantial.

Government Institutions

Many local, state, and federal government office buildings and properties are located in downtown Seattle, and some are located immediately adjacent to the project corridor. Some property would be acquired from several piers to accommodate the new, more westerly alignment of the tunnel. For most of these piers, the property acquisition would be limited to a small sliver of land, and property access is not expected to change.

The Tunnel Alternative no longer has ferry holding located on Pier 46; ferry holding would be located east of SR 99. The AWV Project and Washington State Ferries are coordinating closely to ensure that any AWV Project effects on the Colman Dock ferry operations would be minimized.

For the many government office buildings located in downtown, access from outside of Seattle would change due to the elimination of existing central

downtown ramps, which would necessitate exiting SR 99 to the south or north of the downtown core. Travel routes would change, and travel times may increase. For workers, this change may be an inconvenience, but it would not be a substantial change. A Construction Transportation Management Plan will be developed for the project (see the 2006 Supplemental Draft EIS Appendix C, Transportation Discipline Report).

Neighborhood Cohesion

The Tunnel Alternative in the central section would be quite different from current conditions. The alternative would require the acquisition of five structures, including both office buildings and retail establishments. Two of these would be social resources. Together, these displacements would affect an estimated 163 jobs, which is a small proportion of the more than 89,000 jobs in the central section area (U.S. Bureau of the Census 2003). Depending on the number and types of retail businesses that would be displaced, neighborhood residents could see the loss of these businesses as adverse. Parking spaces would be reduced by approximately 834 spaces in the central waterfront area. This long-term reduction in parking is not substantial considering over 22,000 parking spaces are located in the central section area and parking utilization is estimated at 72 percent (PSRC 2004). This change would not affect neighborhood cohesion in this densely developed area of downtown Seattle. Pedestrian access to the waterfront would be improved with the construction of the Steinbrueck Park Walkway and replacement of the waterfront streetcar tracks as part of the roadway improvements to Alaskan Way surface street.

Option: Side-by-Side Tunnel Alignment, Over Elliott/Western, With Steinbrueck Park Lid

The side-by-side tunnel alignment would have three lanes of traffic in each direction, and the separate structures for the two directions of traffic would be configured side-by-side. People in the neighborhoods along the central section would not be able to see the structure until north of Union Street. There, the side-by-side tunnel alignment would become an aerial structure to pass over the BNSF railroad tracks and over Elliott and Western Avenues connecting to the Battery Street Tunnel. To meet clearance requirements over buildings and the railroad tracks, the aerial structure would be similar in height to the existing viaduct. The tunnel structure would then descend slightly before it enters the south portal of the Battery Street Tunnel. Ramps would descend from the aerial structure to Elliott and Western Avenues. This alignment includes the Steinbrueck Park Lid, which would allow pedestrians to travel from Steinbrueck Park at the north end of Pike Place Market to the waterfront. Property acquisitions would result in a loss of an estimated 177 jobs, which is similar in magnitude to the preferred alignment.

Property acquisition would displace six buildings, two of which are social resources. They include one mixed-use building with one apartment and the

Catholic Seamen's Club. CASA Latina may also be displaced if the agency does not move as currently planned. Following construction, traffic conditions and reductions in parking would be similar to those described for the Draft EIS Tunnel Alternative and for the stacked tunnel alignment. Parking would be reduced by 703 spaces in the central section. This is the same as for the stacked tunnel alignment of the Tunnel Alternative. This long-term reduction in parking is not substantial considering that there are tens of thousands of parking spaces in these areas, and parking utilization is estimated to be 72 percent. This change would not affect neighborhood cohesion in the very densely developed area of downtown Seattle.

The long-term effects of the side-by-side tunnel alignment would be very similar to the stacked tunnel alignment. The acquisition of properties and buildings and changes to access would be very similar. The number and location of ramps for this option would be the same, so travel patterns, congestion points, and changes in travel time would be the same. General access to downtown community facilities, social and employment service agencies, religious and cultural/social institutions, and government institutions would be the same as under the stacked tunnel alignment. These changes would continue to result in a mix of adverse and beneficial effects.

The residents of the Belltown neighborhood, however, would likely perceive the new aerial structure over Elliott and Western Avenues as being a more substantial neighborhood barrier than existing conditions. The structure would be more massive than the existing Alaskan Way Viaduct aerial structure over the BNSF tracks near Pike Street due to increased width. It would increase perceptions of separation between existing residential areas and weaken neighborhood cohesion. Noise levels may be slightly higher due to the difficulty vehicles may have accelerating up and over the aerial structure, but would not be substantially higher than existing conditions. The structure also would create shadows on some adjacent residential buildings. Together, these effects would likely be more adverse than the barrier and visual effects of the proposed side-by-side tunnel alignment.

5.3.3 North Waterfront – Pine Street to Broad Street

As briefly mentioned above, the Tunnel Alternative does not have any ramps at Pike Street as proposed in the Draft EIS. This is a major change from the Draft EIS. Surface road improvements would extend north to Broad Street, including bike lanes on both sides of Alaskan Way surface street. A double set of waterfront streetcar tracks would extend from S. Main Street north to Clay Street.

Following construction, traffic conditions along the north waterfront section would be similar to conditions described for the Tunnel Alternative in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

Population and Housing

The changes in alternative design for this section of the project corridor substantially reduce the adverse effects on residents in the south portion of the north waterfront section, particularly those living in the Waterfront Landing condominium complex. The removal of the ramps at Pike Street would result in less traffic and lower noise levels, though this would not likely be perceived as a noticeable change considering existing high noise levels found in this dense urban environment. People would continue to be able to cross Alaskan Way surface street with relative ease and reach the waterfront in front of the condominium complex. Traffic patterns would be similar to current conditions. The Tunnel Alternative would not result in substantial adverse effects on population and housing.

Community Facilities

The Art Institute of Seattle is adjacent to improvements to Alaskan Way surface street proposed under the Tunnel Alternative. This facility would not be affected by the proposed improvements. No other community facilities are located in the north waterfront section.

Religious Institutions

There are no religious institutions located in the north waterfront section.

Social and Employment Services

There are no social or employment service organizations located along Alaskan Way surface street in the north waterfront section.

Cultural and Social Institutions

The Seattle Aquarium is located on the west side of the Alaskan Way surface street at Pier 59. This site is located between Pike and Pine Streets. Visitors would continue to have similar access to and from the aquarium. Pedestrians in the area would continue to have relatively easy access and would not need to walk along the very busy and noisy Alaskan Way surface street as described for the Draft EIS Tunnel Alternative. Because the Tunnel Alternative no longer has ramps to Alaskan Way surface street at Pike Street, access to the Seattle Aquarium from outside of the downtown area would be somewhat circuitous. The Odyssey Maritime Discovery Center is located farther to the north on Pier 66 and is not expected to experience any substantial changes to general vehicular, transit, or pedestrian access from the immediate area. Access from outside of the downtown area would be

affected similarly to access to the Seattle Aquarium due to the lack of downtown ramps.

Government Institutions

There are only two government institutions located in the north waterfront. A Port of Seattle cruise ship terminal and Port of Seattle marine headquarters are both located at Pier 69. This is considerably north of the proposed tunnel ramps. Direct access and general travel routes using local streets would not be affected by this alternative.

Neighborhood Cohesion

The Tunnel Alternative in the north waterfront section would be very similar to existing conditions, except for slight changes in pedestrian and waterfront streetcar travel. No developed properties would be acquired. The existing southbound off-ramp to Elliott Avenue and northbound on-ramp to Western Avenue would be improved, and the Battery Street and Western Avenue ramps would be restricted for emergency vehicle use only. The local street network and links to the many existing community facilities and services in the downtown core area would not change. Public perception of the accessibility of this neighborhood would not change. This portion of the waterfront is a popular place for pedestrians to walk. The proposed roadway improvements and increased bike and waterfront streetcar access should continue to encourage this activity. Approximately 22 short-term parking spaces would be added on the street in this area. The increased accessibility with the replacement of the streetcar tracks and parking spaces on Alaskan Way surface street could be perceived as having a beneficial effect on neighborhood cohesion.

5.3.4 North – Battery Street Tunnel to Comstock Street

Since publication of the Draft EIS Appendix I, Social Resources Technical Memorandum in March 2004, the north terminus of the project corridor has been moved from Ward Street three blocks north to Comstock Street.

Partially Lowered Aurora

The Tunnel Alternative in the north section includes improving fire/life safety of the Battery Street Tunnel and increasing the vertical clearance in the tunnel to 16.5 feet. Thomas and Harrison Streets would be reconnected over Aurora Avenue N., Broad Street would be closed, and Mercer Street would be widened and cross under Aurora Avenue N. North of Roy Street, cross streets would become cul-de-sacs at John, Valley, and Aloha Streets to prohibit access to or from Aurora Avenue N. New roadway would be constructed to connect Sixth Avenue N. between Harrison and Roy Streets. Broad Street would be closed

and the right-of-way abandoned to allow for reconnection of local streets across Aurora Avenue N. from Fifth Avenue N. to Ninth Avenue N.

Population and Housing

The north section traverses two predominantly residential neighborhoods. Many large apartment buildings, condominiums, and subsidized housing units are located immediately adjacent to the Battery Street Tunnel in the Belltown neighborhood. The first several blocks of Aurora Avenue N. north of Denny Way are primarily automobile-oriented commercial uses, but residential uses dominate again in the northern portion of the north section, especially west of Aurora Avenue N. No residential properties would be acquired in the north section along the Aurora Avenue N. corridor. Access would change slightly due to the construction of cul-de-sacs on three local streets intersecting Aurora Avenue N.

Community Facilities

No community facilities would be acquired for excavation associated with the Partially Lowered Aurora Option.

Religious Institutions

No properties owned by religious institutions would be acquired in the north section.

Social and Employment Services

No social service organizations would be acquired for construction of the Tunnel Alternative in the north section.

Cultural and Social Institutions

One social institution, a professional school, would be acquired in the north section. No cultural institutions would be affected.

Government Institutions

One local government property, Fire Station No. 2, is located adjacent to the Battery Street Tunnel, and construction activities would require that this building be modified for the Partially Lowered Aurora Option. Following modification, fire station operations would be the same as current conditions.

Neighborhood Cohesion

The Tunnel Alternative in the north section would result in both adverse and beneficial effects related to neighborhood cohesion. Property acquisitions would be more substantial than in other corridor sections. A total of six buildings, none of which are social resources, would be acquired. This would result in a displacement of an estimated 108 jobs. This job displacement, however, is very small compared to the more than 52,000 jobs in the north

section area (U.S. Bureau of the Census 2003). Widening and lowering Aurora Avenue N. would generally enlarge the footprint of roadway facilities. This could potentially increase the perceived barrier effect of the roadway compared to existing conditions.

However, this alternative also includes the construction of local street bridges across Aurora Avenue N. and cul-de-sacs on three local streets intersecting Aurora Avenue N. These would improve neighborhood cohesion. The bridges would be located at Thomas and Harrison Streets, Broad Street would be closed, and Mercer Street would be widened. Cul-de-sacs would be constructed on both sides of Aurora Avenue N. at John, Valley, and Aloha Streets to prevent through traffic from using the adjacent residential neighborhoods. Other road improvements would expand the street grid near Seattle Center.

These aspects of the Tunnel Alternative contrast with existing conditions. Currently, vehicles and pedestrians are entirely prohibited from crossing Aurora Avenue N. to the north of Denny Way due to heavy traffic volumes, a lack of stoplights, and concrete barriers in the middle of the roadway. Vehicles can make right turns on to and off of Aurora Avenue N. at almost all local streets that currently intersect the roadway. There is only one existing pedestrian bridge that crosses Aurora Avenue N. between Denny Way and Comstock Street.

All vehicular and pedestrian travel in the neighborhood would be improved. Pedestrians, bicyclists, and vehicles traveling between the South Lake Union and Uptown (Lower Queen Anne) neighborhoods would have increased opportunities to cross Aurora Avenue N. The new bridge crossings may also result in changes to bus routes and improved travel conditions for transit riders. The new streets would provide access to the recreational amenities along the shoreline of South Lake Union, as well as the cultural activities at Seattle Center. About 11 on-street parking spaces and 110 off-street parking spaces would be removed in the north section. This is a small proportion of the more than 18,000 parking spaces available in the north section (PSRC 2004). In addition, most existing businesses in this area have their own off-street parking lots. General congestion in the neighborhoods would be reduced due to a limited number of streets providing access to Aurora Avenue N. The neighborhoods would be buffered from some through traffic due to the construction of cul-de-sacs on three local streets (John, Valley, and Aloha Streets) intersecting the arterial. However, traffic on Thomas and Harrison Streets would increase from current conditions, as these streets would become bridges across the arterial.

In conclusion, the long-term effects of the Tunnel Alternative in the north section would be a mixture of both adverse effects and benefits to social

resources in the Uptown (Lower Queen Anne) and South Lake Union neighborhoods. Overall, the benefit of constructing the two bridges over Aurora Avenue N., widening Mercer Street, closing Broad Street, and reconnecting the local street grid would outweigh the adverse effects.

Option: Widened Battery Street Tunnel Curves, Lowered Aurora

This option of the Tunnel Alternative is similar to the alternative described above, though overall effects would be much more substantial. Fire/life safety improvements, increased height clearance, and widening both portal curves would be included in this option. Two local streets would be reconnected across Aurora Avenue N.: Thomas and Harrison Streets. New ramps and street improvements would be made north of the Battery Street Tunnel. Cul-de-sacs would be constructed on both sides of Aurora Avenue N. at John, Valley, and Aloha Streets and the west side of Ward Street. The number of on-street parking spaces would increase by about 20 spaces in the north section, though an estimated 303 off-street parking spaces would be eliminated for a net reduction of 283 parking spaces. Again, this is a small proportion of the total available in the area.

Property acquisitions and effects would be more substantial than described above. A total of 17 buildings would be acquired, and 4 of these buildings are social resources. A low-income housing complex (8 units) would be acquired. A church and a church auxiliary building would be acquired. A professional school would be acquired, as well as a social service agency. Partial land acquisition also would affect two residential apartment complexes. Nonresidential property acquisitions would result in the loss of an estimated 186 jobs, somewhat more than under the preferred alignment. As such, the effects of this option on social resources would be greater than described above for the Partially Lowered Aurora Option.

5.3.5 Seawall – S. Washington Street to Broad Street

For the Tunnel Alternative, the replacement of the seawall would occur between S. Washington Street and Broad Street (not to Bay Street as described in the Draft EIS). The alternative now begins several blocks north and terminates several blocks south of the seawall described in the Draft EIS Tunnel Alternative. No property would be acquired, and no jobs would be displaced, so there would be no long-term effects on social resources or neighborhood cohesion.

5.4 Elevated Structure Alternative

The Elevated Structure Alternative has only one option. In the south section, it would cross the railyard area by either reconfiguration or relocation of the Whatcom Railyard. In the central section, the viaduct would be replaced with

a double-level aerial structure with reconstructed ramps to Columbia and Seneca Streets and Western and Elliott Avenues. Unlike the Draft EIS Rebuild Alternative, the Elevated Structure Alternative would be approximately 20 feet wider than the existing viaduct in the central waterfront area to improve safety. There is no option for the north section—it is the same as described for the Tunnel Alternative with the Partially Lowered Aurora improvements.

5.4.1 South – S. Spokane Street to S. Dearborn Street

The south section of the Elevated Structure Alternative is slightly different from the Rebuild Alternative described in the Draft EIS. The configurations proposed include either reconfiguring the Whatcom Railyard or relocating the railyard and the tail track. In addition, the SODO Ramps would not be a full-access interchange, as they have no southbound on- or northbound off-ramps near S. Dearborn Street.

Reconfigured Whatcom Railyard

The effects on social resources for the Reconfigured Whatcom Railyard would be the same as the effects described in Section 5.3.1. Access to and from the St. Martin de Porres Shelter would be more difficult due to the increased congestion in the area surrounding the new SODO Ramps. The change in traffic patterns, congestion, and reduced parking in and around the stadiums and exhibition hall would be similar. Fewer parking spaces (only 597 spaces) would be displaced compared to the reconfigured alignment of the Tunnel Alternative. Land would be acquired from Pier 30 and Pier 36. The alternative would displace an estimated 184 jobs, which is a very small portion of the more than 24,000 jobs in the south section area (U.S. Bureau of the Census 2003). Two social resources, the U.S. Coast Guard Museum of the Northwest and the U.S. Coast Guard office building at Pier 36, would be relocated. The new SODO Ramps should facilitate traffic flow following large sports events. Overall, the adverse effects on social resources would not be substantial.

Option: Relocated Whatcom Railyard

The effects on social resources for the Relocated Whatcom Railyard would be similar to the effects described above in Section 5.3.1. A primary difference is that the SODO Ramps would have no southbound on-ramp or northbound off-ramp near S. Dearborn Street. A total of six buildings would be acquired, though only two of these are social resources: the U.S. Coast Guard office building and the Museum of the Northwest. An estimated 274 jobs would be displaced. These differences, however, do not change the overall effects on social resources in the south section to substantial effects.

5.4.2 Central – S. Dearborn Street to the Battery Street Tunnel

In the central section of the project corridor, the Elevated Structure Alternative would be different from the design configuration described and evaluated in the Draft EIS. The Draft EIS Rebuild Alternative continued to use the right-of-way of the existing facility, but the Elevated Structure Alternative would be wider by approximately 20 feet. Along the central waterfront, the new structure would maximize the use of the existing facility footprint. In the central section, most of the wider portion of the new facility would be to the west of the existing facility. Where the structure is transitioning to or from the double-level aerial structure, portions of the aerial structure would extend considerably west (towards the waterfront) of the existing footprint. Ramps would be replaced at Columbia and Seneca Streets as well as Western and Elliott Avenues. The ramps at Battery Street would be reserved for emergency vehicle use only. There would be no lid structure to connect Steinbrueck Park to the waterfront, but bike lanes would be added to either side of Alaskan Way. The waterfront streetcar tracks would be rebuilt.

Only four buildings would be acquired. This property acquisition would include a mixed-use building with one apartment and may displace CASA Latina if the agency does not move in the near future as currently planned. Following construction, traffic conditions would be similar to described conditions for the Draft EIS Rebuild Alternative, but parking availability would be different. The evaluation of parking indicated a loss of 249 spaces in the central waterfront area, which remains a small portion of the more than 22,000 spaces available in the area and 72 percent utilization rate (PSRC 2004).

Despite the differences in the design of the central section of the project corridor, the effects on social resources would be nearly the same as described above for the Tunnel Alternative in Section 5.3.2, Neighborhood Cohesion. The only social resource that would be acquired would be one small mixed-use property with a residential apartment. Portions of several piers would be affected. An estimated 147 jobs would be displaced, which is a very small proportion of the more than 89,000 jobs in the central section area (U.S. Bureau of the Census 2003). These are fewer effects than were described for the Tunnel Alternative.

Overall, the traffic patterns, access routes to downtown, and congestion would be somewhat similar to current conditions. Vehicle, transit, streetcar, and pedestrian access to and from the Bread of Life Mission and the Lutheran Compass Center homeless shelters are not expected to change. No substantial changes in access are foreseen for community facilities or religious institutions in the central section. Access to the many social and employment services in downtown Seattle would not substantially change for either providers or

clients. No adverse effects would occur to cultural and social institutions under the Elevated Structure Alternative.

5.4.3 North Waterfront – Pine Street to Broad Street

The existing Alaskan Way surface street would be rebuilt in its existing footprint in the north waterfront section of the Elevated Structure Alternative. A bicycle lane would be provided on both sides of Alaskan Way surface street, and two sets of waterfront streetcar tracks would extend north to Broad Street. Peak traffic congestion is forecasted to be similar to current conditions considering that the ramps to and from the viaduct would be similar to existing conditions. Available parking spaces would increase by an estimated 85 spaces. Pedestrian access would be similar to existing conditions. Furthermore, long-term use of this roadway is expected to be very similar to current use. General access to community facilities, religious and cultural/social institutions, social and employment services, and government institutions would generally be very similar to current access. Neighborhood cohesion in this section of the project area is not expected to change. No adverse effects on social resources are expected. The new bicycle lanes, waterfront streetcar service, and some increase in on-street parking spaces would generally benefit mobility in the adjacent neighborhood.

5.4.4 North – Battery Street Tunnel to Comstock Street

For the Draft EIS Rebuild Alternative, fire/life safety improvements would be made to the Battery Street Tunnel and the vertical clearance in the tunnel would be increased to 16.5 feet, but there would be no widening of either the south or the north portal curves. Aurora Avenue N. would be partially lowered, Thomas and Harrison Streets would be reconnected over Aurora Avenue N., Broad Street would be closed, and Mercer Street would be widened under the arterial. This configuration is the same as described for the Tunnel Alternative. Cul-de-sacs would be constructed on both sides of Aurora Avenue N. at John, Valley, and Aloha Streets.

The long-term effects on social resources in the north section of the project corridor from partially lowering Aurora Avenue N. would be the same as described above for the Tunnel Alternative. However, slightly different property acquisitions would be required. An estimated 109 jobs would be displaced. The property of one religious institution would be partially acquired, but there would be no effects on the building. An estimated 121 parking spaces would be displaced, the same as for the Partially Lowered Aurora Option of the Tunnel Alternative. The effects on neighborhood cohesion would generally benefit adjacent neighborhoods due to the increased number of local streets that would cross Aurora Avenue N. and the addition of cul-de-sacs on three local streets to prevent traffic from Aurora

Avenue N. from cutting through the adjacent residential neighborhoods. Overall, the effects on social resources would be mixed.

5.4.5 Seawall – S. Washington Street to Broad Street

For the Elevated Structure Alternative, the replacement of the seawall would extend from S. King Street to Broad Street. The effects on social resources would be the same (no adverse effects) as described above in Section 5.3.5.

5.5 Summary of Benefits by Alternative

5.5.1 Tunnel Alternative (Preferred Alternative)

Particular benefits attributable to this alternative include the following:

- Additional access and reduced traffic congestion would occur in the stadium area due to the new SODO Ramps. The increased traffic volumes and access to this neighborhood could benefit local businesses and industries.
- The reduction in the number of downtown ramps would lower traffic volumes, congestion, and noise levels downtown near some existing ramps. This would help to improve quality of life and neighborhood cohesion.
- The removal of the existing elevated viaduct would open views of Elliott Bay from the downtown area and remove the shadowing effect of the existing structure. These changes would improve pedestrian access and adjacent neighborhood connectivity with the waterfront. The north waterfront would continue to be a pedestrian-oriented corridor.
- Closure of the Battery Street and Western Avenue ramps for general use would improve the perceived quality of life in the immediate area due to reduced traffic congestion and noise.
- Connecting local grid streets over a lowered Aurora Avenue N. would increase linkages between the Uptown (Lower Queen Anne) and South Lake Union neighborhoods.
- Limiting access to and from Aurora Avenue N. and the construction of cul-de-sacs on either side of the roadway for John, Valley, and Aloha Streets would control traffic flow through the neighborhoods.
- The Tunnel Alternative would overall result in improved neighborhood cohesion in the central and north sections of the project corridor due to the removal of a physical barrier separating the downtown core and the waterfront and the improved local street connectivity across Aurora Avenue N.

5.5.2 Elevated Structure Alternative

Particular benefits attributable to this alternative include the following:

- Additional access and reduced traffic congestion would occur in the stadium area due to the new SODO Ramps. The increase in general transportation access to this neighborhood could benefit local businesses and industries.
- Most existing ramps to and from downtown Seattle would continue to be available to provide access to community facilities, religious institutions, social and employment services, cultural and social institutions, and government offices.
- Closure of the Battery Street and Western Avenue ramps for general use could improve the perceived quality of life in the immediate area due to reduced traffic congestion and noise.
- The north waterfront would continue to be a pedestrian-oriented corridor.
- Connecting local streets over a lowered Aurora Avenue N. would increase linkages between the Uptown (Lower Queen Anne) and South Lake Union neighborhoods.
- Limiting access to and from Aurora Avenue N. and the construction of cul-de-sacs on either side of the roadway for John, Valley, and Aloha Streets would control traffic flow through the neighborhoods.
- The Elevated Structure Alternative would overall result in improved neighborhood cohesion in the north section of the project corridor due to improved local street connectivity between the Uptown (Lower Queen Anne) and South Lake Union neighborhoods.

This Page Intentionally Left Blank

Chapter 6 CONSTRUCTION IMPACTS

This chapter discusses anticipated changes and disruptions that could affect social resources during construction. Generally, these effects are evaluated for all social resources located within approximately two blocks of the project corridor. This area would be most adversely affected by construction impacts, particularly noise effects. These effects on social resources are temporary, though the anticipated duration of construction for the project alternatives would be many years.

A major change has occurred in the approach to construction activities since the publication of the Draft EIS in March 2004. Originally, the construction plan required continued use of the Alaskan Way Viaduct between S. Spokane Street and the Battery Street Tunnel during construction with only very short periods of road closure for one or both directions of travel. This is referred to as the longer plan. Since the publication of the Draft EIS, the engineering approach to the construction of the Tunnel Alternative was modified in an effort to shorten the overall construction period. The revised plans assume that one or both directions of traffic would be closed, either periodically or fully. The shorter plan reduces the construction period for the Tunnel (Preferred) Alternative to 7 years, and the intermediate plan would take approximately 8 to 8.75 years. In contrast, the longer plan to construct the Elevated Structure Alternative would take an estimated 10 years irrespective of differences in constructing the Reconfigured or Relocated Whatcom Railyard. All of these construction periods include the estimated 30 months needed for utility relocations at the beginning of construction activities.

The different construction plans also affect how long construction traffic detours would be used. Depending on the construction plan, detours could include the First Avenue S. Detour, Broad Street Detour, and/or general increased use of downtown streets that parallel the Alaskan Way Viaduct, i.e., First, Second, Fourth, and Fifth Avenues. Traffic also would use I-5 to avoid downtown construction-related traffic congestion.

The construction effects on social resources are primarily the result of proximity to noise, air pollution, and light and glare from the construction activities in the project corridor. They may also include changes in property access, traffic detours, loss of parking, and the effects of the construction staging areas. Any changes to residential land uses and population from property acquisition would not be substantial (see Section 5.2). Residents and business owners, however, would likely perceive the construction effects as nearly permanent considering the lengthy duration of the construction period. The differences between the shorter, intermediate, and longer plans would

not result in substantial differences as measured by users, operators, owners, and residents of social resources. These effects, though temporary, would be perceived as nearly permanent effects, and people would need to make long-term adjustments. The proposed mitigation measures for construction effects on social resources are discussed separately in Chapter 9.

6.1 Impacts Common to the Tunnel and Elevated Structure Alternatives

Since the publication of the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum, there have been changes in the proposed design and construction plans for the Tunnel and Elevated Structure Alternatives. Many of the construction effects, however, are similar. For example, the alignment and length of the two alternatives are nearly the same, so adjacent land uses would be similarly affected. The sections below discuss the common construction effects on social resources for the two alternatives.

6.1.1 Population and Housing

Potential project construction effects on population and housing would occur under two scenarios. The demand for construction workers would not attract workers from outside the region to move to the project area for employment opportunities specifically associated with the proposed project. In addition, construction activities could adversely affect the lives of residents living near construction zones. The following sections describe these effects.

Workers and Housing

The number of workers required for the construction of the updated Tunnel and Elevated Structure Alternatives has been estimated based on both the conceptual design of the alternatives and the new construction plans and shorter overall durations. Exhibit 6-1 shows these estimates. The duration for the Tunnel Alternative has been reduced from 10.5 years to 7 to 8.75 years, and the average number of construction jobs has decreased from 1,317 to 1,086 workers. Comparing the Rebuild and Elevated Structure Alternatives, the duration of construction increased from 9 years to 10 years and the average annual number of construction jobs has decreased from 1,212 to 669 workers. Though the period of time it would take to construct the alternative is different from the alternatives evaluated in the Draft EIS, the average number of construction jobs required for each would not be substantially different for the Tunnel Alternative, but would be almost half for the Elevated Structure Alternative. For additional information, please see the 2006 Supplemental Draft EIS Appendix P, Economics Technical Memorandum.

Exhibit 6-1. Demand for Construction Workers by Alternative

Alternative	Average Annual Construction Employment (jobs)	Construction Duration (years)	Proportion of Forecasted Regional 2010 Construction Work Force
No Build	0	0	0%
Tunnel Alternative			
Stacked Tunnel Alignment	1,086	7–8.75	< 1%
Tunnel Alternative			
Side-by-Side Tunnel Alignment	1,125	7–8	< 1%
Elevated Structure Alternative	669	10	< 1%

Note: The forecasted 2010 wage and salary employment for the construction sector of the four-county regional economy is 121,100 workers.
Source: PSRC 2002.

As shown in Exhibit 6-1, the average annual number of workers employed on the AWV Project would be only a very small percent of the forecasted number of workers in the region's construction sector employment. Similar to the conclusions in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum, this demand for construction workers is expected to be met by available labor. Workers from outside of the region would generally not be expected to move to the area for employment opportunities specifically associated with the AWV Project. Some workers, however, would move to the area as part of the normal movement of workers from one labor market to another.

A small number of workers with specialty skills, however, would be expected to work on the construction of the project, and many do not live in the region. For example, the amount of electric utility relocation work required is anticipated to exceed labor available at Seattle City Light and regional contracting companies who specialize in this type of work (Joy 2006). The local availability of specialty skilled workers is commonly not sufficient, especially for very large construction projects like the AWV Project. Because of their specialty skills, however, it is anticipated that the workers would be employed for relatively short periods, not the entire duration of the project construction period. And, as is common in the construction industry, such workers and their families typically do not permanently relocate to the region in which the construction project is located. Rather, they usually rent motel rooms or apartments. The temporary residency of a very small number of these specialty skilled workers in the Puget Sound metropolitan region would not affect the availability of such housing in the region.

In conclusion, it is not anticipated that the demand for construction workers, including those from outside the region, would directly affect population or housing resources in the Puget Sound region.

Downtown Residents and Housing

The project alternatives generally would have very similar effects on the people living in close proximity to the construction zone as described in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum. Exhibit 6-2 shows the total number of dwellings and an estimated population within approximately two blocks of the corridor that generally would be affected by project construction activities. Because improvements on the Battery Street Tunnel would be mostly underground, the impact area for these construction activities is assumed to be only one block. These estimates, however, do not include the population that would be affected by the potential staging areas for the two alternatives nor those residing along traffic detour routes. That information will be included in the Final EIS. In total, the construction impact area defined by noise effects includes an estimated 6,983 dwellings with a total population of approximately 13,425 residents. Of these dwellings, an estimated 1,270 units, or approximately 18 percent, are low-income, special needs, or emergency shelter units. These units provide housing for an estimated 2,399 low-income residents.

Exhibit 6-2. Construction Effects on Housing and Population

	South Section	Central Section	North Waterfront Section	North Section	Seawall Section	Corridor Impact Area[1]
Total Dwelling Units[2]	33	5,067	1,565	2,206	6,348	6,983
Total Population[3]	263	8,477	2,473	3,529	10,030	13,425
Low-Income Dwelling Units[4]	1 (3%)	1,049 (21%)	62 (4%)	220 (10%)	976 (16%)	1,270 (18%)
Low-Income Population[3]	212 (80%)	1,796 (21%)	98 (4%)	390 (11%)	1,796 (18%)	2,399 (18%)

[1] The corridor impact area is the total for the project corridor; it is not the sum of the component parts due to an overlap of project corridor sections.

[2] Dwellings are those that would be affected by noise effects, or those located within approximately one to two blocks of the construction area. The term dwelling does not include stays in hotels and motels.

[3] Population is calculated using the average size of households in the study area, or 1.58 persons per household, plus the total capacity of shelters.

[4] Low-income housing includes subsidized housing, special needs housing, and emergency housing such as shelters. Shelters in the area have a capacity of 70 to 100 persons.

Exhibit 6-2 also provides an estimated number of dwellings and population that could be affected in each of the project sections. The sum of the dwellings and population presented for each of the project corridor sections, however, does not equal the total for the corridor impact area. This is because there is an overlap of the central and north waterfront sections near Pike and Pine Streets. In addition, there is an overlap of the central and north waterfront sections and the seawall section.

The point in discussing this information is to show that some residents would be affected by construction activities associated with more than one project element (i.e., roadway versus seawall sections). In addition, depending on project construction sequencing, residents could repeatedly be affected by construction activities, because activities are not expected to move progressively from one end of the project to another. For additional information on construction sequencing, please see Chapter 5 of the 2006 Supplemental Draft EIS Appendix B, Alternatives Description and Construction Methods Technical Memorandum.

The results of this analysis also indicate that the population affected by the alternatives is different than the effects described in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum. Several reasons explain this change. The project corridor was lengthened to the north by three blocks from Prospect Street to Comstock Street. The south boundary of the central section moved to the south by two blocks from S. King Street to S. Dearborn Street. More detailed information is now available concerning land uses along the project corridor, and new residential projects have been proposed and/or completed. Overall, the total population anticipated to be affected by construction activities increased from 9,759 residents in the Draft EIS to 13,425 residents—an increase of about 38 percent.

Adjacent Residential Properties

Many residential buildings face the construction zone or are located within 50 feet. The residents of these buildings would most be affected by noise, light, glare, and change in access associated with construction activities, especially considering that construction would occur 24 hours per day. Exhibit 6-3 lists the social resources adjacent to the construction zone, i.e., buildings located within 50 feet of the project corridor. In summary, an estimated 31 to 42 residential properties would be affected by the project alternatives, and an estimated 4,077 to 4,246 residents live adjacent to (i.e., in buildings within 50 feet of) the construction area along the entire length of the project corridor.

Approximately 1,100 to 1,200 residents would similarly be affected in the central and north sections under both alternatives. This is because most residential properties are small to medium-sized apartment complexes, but the few large complexes in either corridor section are the major share of total dwellings, and each of those large complexes are equally affected under both alternatives in both corridor sections.

Compared to the Draft EIS, both of these alternatives have substantially greater construction impacts to residential buildings in the north section. The Tunnel Alternative is longer by several blocks. Overall, this analysis shows that despite the large number of properties that would be within close proximity of the construction area for either alternative, the Tunnel and Elevated Structure Alternatives as currently designed would result in substantially fewer acquisitions of social resources compared to the alternatives evaluated in the Draft EIS.

Exhibit 6-3. Adjacent Residents Affected by Construction Activities

Project Section	Building Use	Stacked Tunnel Reconfigured Whatcom Railyard[1]	Side-by-Side Tunnel Relocated Whatcom Railyard[2]	Elevated Structure Reconfigured Whatcom Railyard[1]	Elevated Structure Relocated Whatcom Railyard[1]
Housing					
South	Bemis Building (32 units)	Adjacent[2]	Adjacent	Adjacent	Adjacent
South	St. Martin de Porres Shelter (212 cap.)[3]	Adjacent	Adjacent	Adjacent	Adjacent
Subtotal		***2 Adjacent*** *(263 pop.)*	***2 Adjacent*** *(263 pop.)*	***2 Adjacent*** *(263 pop.)*	***2 Adjacent*** *(263 pop.)*
Central	Our Home Hotel (14 units)	Adjacent	Adjacent	Adjacent	Adjacent
Central	Boston Hotel (3 subsidized units)	Adjacent	Adjacent	Adjacent	Adjacent
Central	OK Hotel (44 subsidized units)	Adjacent	Adjacent	Adjacent	Adjacent
Central	Compass Center Shelter (23 cap.)	Adjacent	Adjacent	Adjacent	Adjacent
Central	Compass Center Shelter (79 cap.)	Adjacent	Adjacent	Adjacent	Adjacent
Central	Prudential Building (23 units)	Adjacent	Adjacent	Adjacent	Adjacent
Central	Waterfront Place (19 units)	Adjacent	Adjacent	Adjacent	Adjacent
Central	Hillclimb Court (35 units)	Adjacent	Adjacent	Adjacent	Adjacent
Central	Fix Building (31 units)	Adjacent	Adjacent	Adjacent	Adjacent
Central	PC-I South (62 units)	Adjacent	Adjacent	Adjacent	Adjacent
Central	Heritage House (62 subsidized units)	Adjacent	Adjacent	Adjacent	Adjacent
Central	Waterfront Center (37 units)	Adjacent	Adjacent	Adjacent	Adjacent

Exhibit 6-3. Adjacent Residents Affected by Construction Activities (continued)

Project Section	Building Use	Stacked Tunnel Reconfigured Whatcom Railyard[1]	Side-by-Side Tunnel Relocated Whatcom Railyard[2]	Elevated Structure Reconfigured Whatcom Railyard[1]	Elevated Structure Relocated Whatcom Railyard[1]
Central	Harbor Steps (474 units)	Adjacent	Adjacent	Adjacent	Adjacent
Central	Oregon Hotel (83 subsidized units)	Adjacent	Adjacent	Adjacent	Adjacent
Central	Pomeroy (48 units)	Adjacent	Adjacent	Adjacent	Adjacent
Central	Site 17 South (97 units)	Adjacent	Adjacent	Adjacent	Adjacent
Subtotal		***16 Adjacent*** *(1,134 pop.)*	***16 Adjacent*** *(1,134 pop.)*	***16 Adjacent*** *(1,134 pop.)*	***16 Adjacent*** *(1,134 pop.)*
North Waterfront	Waterfront Landing (235 units)	Adjacent	Adjacent	Adjacent	Adjacent
North Waterfront	Elliott Point (64 units)	Adjacent	Adjacent	Adjacent	Adjacent
North Waterfront	2300 Elliott (92 units)	Adjacent	Adjacent	Adjacent	Adjacent
North Waterfront	Belltown Lofts (40 units)	Adjacent	Adjacent	Adjacent	Adjacent
North Waterfront	Olympus (327 units)	Adjacent	Adjacent	Adjacent	Adjacent
North Waterfront	Elliott Bay Plaza (233 units)	Adjacent	Adjacent	Adjacent	Adjacent
Subtotal		***6 Adjacent*** *(1,566 pop.)*	***6 Adjacent*** *(1,566 pop.)*	***6 Adjacent*** *(1,566 pop.)*	***6 Adjacent*** *(1,566 pop.)*
North	Lexington/Concord (59 subsidized units)	Adjacent	Adjacent	Adjacent	Adjacent
North	Fountain Court (320 units)	Adjacent	Adjacent	Adjacent	Adjacent
North	Belltown Court (245 units)	Adjacent	Adjacent	Adjacent	Adjacent
North	Case del Rey (9 units)	Adjacent	Adjacent	Adjacent	Adjacent
North	Valley House (8 subsidized units)	Adjacent		Adjacent	Adjacent
North	Apartment Complex (2 units)	Adjacent	Adjacent	Adjacent	Adjacent
North	Altera (62 units)	Adjacent	Adjacent	Adjacent	Adjacent
North	Crest Manor (20 units)		Adjacent		
North	Apartment Complex (9 units)		Adjacent		
North	Apartment Complex (7 units)		Adjacent		
North	Aloha (13 units)		Adjacent		
North	Apartment Complex (2 units)		Adjacent		
North	Single Family (1 unit)		Adjacent		
North	Apartment Complex (2 units)		Adjacent		
North	Apartment Complex (2 units)		Adjacent		

Exhibit 6-3. Adjacent Residents Affected by Construction Activities (continued)

Project Section	Building Use	Stacked Tunnel Reconfigured Whatcom Railyard[1]	Side-by-Side Tunnel Relocated Whatcom Railyard[2]	Elevated Structure Reconfigured Whatcom Railyard[1]	Elevated Structure Relocated Whatcom Railyard[1]
North	Single Family (1 unit)		Adjacent		
North	Highland (19 unit)		Adjacent		
North	Regency (22 units)		Adjacent		
North	Apartment Complex (9 units)		Adjacent		
Subtotal		***7 Adjacent*** *(1,114 pop.)*	***18 Adjacent*** *(1,283 pop.)*	***7 Adjacent*** *(1,114 pop.)*	***7 Adjacent*** *(1,114 pop.)*
Total		**31 Properties** (4,077 pop.)	**42 Properties** (4,246 pop.)	**31 Properties** (4,077 pop.)	**31 Properties** (4,077 pop.)

[1] The Tunnel Alternative with the Reconfigured Whatcom Railyard Option and the Elevated Structure Alternative with either Whatcom Railyard option include the Partially Lowered Aurora Option for improvements north of the Battery Street Tunnel.

[2] The Tunnel Alternative with the Relocated Whatcom Railyard Option includes the Lowered Aurora Option.

[3] Adjacent means that the building and/or property is within 50 feet of construction activity and access to the building may be affected.

[4] Cap. means capacity.

6.1.2 Nonresidential Social Resources

As described in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum, a number of other social resources would be affected by the project construction activities due to their proximity. These include community facilities, religious institutions, social and employment services, cultural and social institutions, and government institutions. The types of effects are well-documented in the 2004 Draft EIS Appendix I. The specific social resources adjacent to the project corridor that would be affected under the updated Tunnel and Elevated Structure Alternatives are listed in Exhibit 6-4.

Exhibit 6-4. Adjacent Nonresidential Social Resources Affected by Construction Activities

Project Section	Building Use	Stacked Tunnel Reconfigured Whatcom Railyard[1]	Side-by-Side Tunnel Relocated Whatcom Railyard[2]	Elevated Structure Reconfigured Whatcom Railyard[1]	Elevated Structure Relocated Whatcom Railyard[1]
Community Facilities					
South	Pacific Maritime Institute (Pier 30)		Adjacent[3]		Adjacent
Subtotal		***0 Adjacent***	***1 Adjacent***	***0 Adjacent***	***1 Adjacent***

Exhibit 6-4. Adjacent Nonresidential Social Resources Affected by Construction Activities (continued)

Project Section	Building Use	Stacked Tunnel Reconfigured Whatcom Railyard[1]	Side-by-Side Tunnel Relocated Whatcom Railyard[2]	Elevated Structure Reconfigured Whatcom Railyard[1]	Elevated Structure Relocated Whatcom Railyard[1]
Central	Art Institute South Campus	Adjacent	Adjacent	Adjacent	Adjacent
Subtotal		***1 Adjacent***	***1 Adjacent***	***1 Adjacent***	***1 Adjacent***
North	Antioch University	Adjacent	Adjacent	Adjacent	Adjacent
North	Fire Station No. 2	Adjacent	Adjacent	Adjacent	Adjacent
North	School of Visual Concepts	Adjacent		Adjacent	Adjacent
Subtotal		***3 Adjacent***	***2 Adjacent***	***3 Adjacent***	***3 Adjacent***
Religious Institutions					
North	Church of Scientology	Adjacent		Adjacent	Adjacent
North	Horizon Church (rec center)	Adjacent		Adjacent	Adjacent
Subtotal		***2 Adjacent***	***0 Adjacent***	***2 Adjacent***	***2 Adjacent***
Social And Employment Services					
North	Catholic Seamen's Club			Adjacent	Adjacent
North	Seattle Housing Authority		Adjacent		
Subtotal		***0 Adjacent***	***1 Adjacent***	***1 Adjacent***	***1 Adjacent***
Cultural And Social Institutions					
Subtotal		***0 Adjacent***	***0 Adjacent***	***0 Adjacent***	***0 Adjacent***
North Waterfront	The Seattle Aquarium/ Waterfront Park (Pier 59)	Adjacent	Adjacent	Adjacent	Adjacent
North Waterfront	Odyssey Maritime Discovery Center (Pier 66)	Adjacent	Adjacent	Adjacent	Adjacent
North Waterfront	Bell Harbor Conference Center (Pier 66)	Adjacent	Adjacent	Adjacent	Adjacent
North Waterfront	Bell Street Pier Marina (Pier 66)	Adjacent	Adjacent	Adjacent	Adjacent
Subtotal		***4 Adjacent***	***4 Adjacent***	***4 Adjacent***	***4 Adjacent***
North	Girl Scouts – Totem Council		Adjacent		
Subtotal		***0 Adjacent***	***1 Adjacent***	***0 Adjacent***	***0 Adjacent***
Government Institutions					
South	Port of Seattle (Pier 25)	Adjacent			Adjacent
South	Port of Seattle Cruise Ship Terminal (Pier 30)	Adjacent			Adjacent
Subtotal		***2 Adjacent***	***0 Adjacent***	***0 Adjacent***	***2 Adjacent***

Exhibit 6-4. Adjacent Nonresidential Social Resources Affected by Construction Activities (continued)

Project Section	Building Use	Stacked Tunnel Reconfigured Whatcom Railyard[1]	Side-by-Side Tunnel Relocated Whatcom Railyard[2]	Elevated Structure Reconfigured Whatcom Railyard[1]	Elevated Structure Relocated Whatcom Railyard[1]
Central	Colman Dock Ferry Terminal (Pier 52/53)	Adjacent	Adjacent	Adjacent	Adjacent
Subtotal		***1 Adjacent***	***1 Adjacent***	***1 Adjacent***	***1 Adjacent***
North Waterfront	Port of Seattle Cruise Ship Terminal (Pier 69)	Adjacent	Adjacent	Adjacent	Adjacent
North Waterfront	Port of Seattle Marine Headquarters (Pier 69)	Adjacent	Adjacent	Adjacent	Adjacent
Subtotal		***2 Adjacent***	***2 Adjacent***	***2 Adjacent***	***2 Adjacent***
Total		**15 Properties**	**13 Properties**	**14 Properties**	**17 Properties**

[1] The Tunnel Alternative with the Reconfigured Whatcom Railyard Option and the Elevated Structure Alternative with either Whatcom Railyard option include the Partially Lowered Aurora Option for improvements north of the Battery Street Tunnel.

[2] The Tunnel Alternative with the Relocated Whatcom Railyard Option includes the Lowered Aurora Option.

[3] Adjacent means that the building and/or property is within 50 feet of construction activity and access to the building may be affected.

Adjacent Social Resources

As in the assessment of potential adverse effects on social resources in the Draft EIS, the differences between the construction effects of the project alternatives are small. For all of these social resources, access to and from their buildings for pedestrians, transit users, and motorists would be of most concern.

Generally, the same resources listed in the 2004 Draft EIS Appendix I are expected to experience the most serious effects of the construction activities. As shown in Exhibit 6-4, the construction corridor for the two alternatives and their effects on social resources is very similar for nonresidential resources.

Sensitive Social Resources

Religious institutions may have special concerns over the effects of construction activities. Like other nonresidential social resources, access to buildings will be a concern, as many people generally will need to arrive at one time for services. For these religious institutions, access to buildings and/or the institution's off-street parking lot will be important. In addition, general access to the immediate area will be needed to allow pedestrians, transit riders, and motorists to access religious institutions.

More importantly, though, the use of religious institutions and personal enjoyment of services could be disrupted. Most services include periods of

quiet time for prayer and contemplation, which construction noise could disturb. Construction noise levels could be elevated throughout the construction period (any day, daytime or nighttime), although the location of construction noise will vary as work is focused on different points along the project corridor.

There are two religious institutions located adjacent to the project construction corridor. There are two other religious institutions located within two blocks of the corridor that could be affected by noise levels. All four of these religious institutions are located in the north section of the corridor. In addition, there is a fifth religious institution that is located within approximately two blocks of Broad Street, which would be a designated detour route for the longer construction plan for the Elevated Structure Alternative.

6.1.3 Staging Areas and Truck Haul Routes

Social resources also would experience adverse effects if located adjacent to either construction staging areas or truck haul routes.

The exact location of all construction staging areas is unknown. Rather, general areas have been identified in order to efficiently perform the construction activities, and they are slightly different from the locations identified in the Draft EIS. These locations include one area in the south section, three areas in the central section, one in the north waterfront section, and three in the north section. Of these areas, the ones of most concern would be those located in residential neighborhoods. The residents would be sensitive to increased light, glare, and noise levels during nighttime hours. Potential neighborhood areas under consideration for construction staging include: (1) a site near Blanchard Street and Western Avenue, (2) a site near the Broad Street Detour, (3) a site near the north portal of the Battery Street Tunnel, and (4) a right-of-way on the west side of Aurora Avenue N. acquired for the roadway construction.

At this time, truck haul routes are assumed to be the same as those described in the Draft EIS. These include existing established truck routes that use major arterials through the downtown core. As such, effects would be similar to exiting conditions along these routes.

6.2 Tunnel Alternative (Preferred Alternative)

The Tunnel Alternative evaluates two options in the north end—the Partially Lowered Aurora Option and the Lowered Aurora Option. The Lowered Aurora Option has the same number of bridge crossing as described in the Draft EIS. The new design for the Partially Lowered Aurora Option extends to Aloha Street and has a narrower construction footprint. Two construction

plans are evaluated for the Tunnel Alternative. These are the intermediate plan and the shorter plan. The effects of these plans are somewhat different from the construction impacts assessed for the Tunnel Alternative in the Draft EIS, which evaluated only the longer plan.

6.2.1 Improvements to Aurora Avenue N.

Partially Lowered Aurora

The Partially Lowered Aurora Option is a design modification of the Lowered Aurora Option presented in the Draft EIS. The construction footprint of this option is both narrower and shorter than the Lowered Aurora Option. The narrower construction footprint means that fewer properties would be acquired along Aurora Avenue N. In addition, property acquisitions associated with this option do not extend north of Mercer Street, a full four blocks shorter than under the Lowered Aurora Option.

The shorter and narrower construction footprint of the Partially Lowered Aurora Option would reduce the barrier effect produced by the construction activities. The adverse effects on adjacent residential land uses also would be slightly reduced. The city blocks between Mercer Street and Prospect Street are predominantly residential. In contrast, those south of Mercer Street are predominantly commercial or light industrial. As such, the number of dwelling units adjacent to the construction corridor in the north section would be much less than under the Lowered Aurora Option evaluated in the Draft EIS.

After utility relocations have occurred, temporary crossings over Aurora Avenue N. would be constructed for traffic detoured from Mercer Street and Broad Street. Reconnecting local streets across Aurora Avenue N. would greatly reduce the barrier effect of the construction activities and strengthen neighborhood cohesion in both the Uptown (Lower Queen Anne) and South Lake Union neighborhoods. The reduced number of bridges over Aurora Avenue N., however, would decrease accessibility between area social resources as well as between the Uptown (Lower Queen Anne) and South Lake Union neighborhoods compared to the Lowered Aurora Option described in the Draft EIS.

Option: Lowered Aurora

The effects on social resources for the Lowered Aurora Option would be similar to those evaluated in the Draft EIS.

Overall, the construction activities north of the Battery Street Tunnel would require the acquisition and construction use of nearly one-half of each block abutting the west side of Aurora Avenue N. between Denny Way and Ward

Street. This construction area is approximately 13 blocks long, or about one mile in length.

This option would also affect the three predominantly residential blocks between Ward and Comstock Streets. These blocks were not affected by construction activities described in the Draft EIS. The residents would be sensitive to the increased noise, dust, light, and glare associated with construction activities. They would be sensitive to noise from loud construction activities, especially related to pile driving that may be necessary in the construction of the Aurora Avenue N. retained cut section. Residents also would be particularly sensitive to nighttime construction noises.

6.2.2 Construction Plans

Shorter Plan

If the shorter plan is used to construct the Tunnel Alternative, the total duration of the construction period would be approximately 7 years. This plan would require the Alaskan Way Viaduct between S. Spokane Street and Denny Way to be totally closed to traffic for a total of 42 months or 3.5 years. This closure would follow 30 months of utility relocations. A total of 12 months of seawall construction and surface street restoration would occur after the viaduct reopens.

Because of the efficiency of construction work during closure of the viaduct, social resources would be affected by construction disruptions for the fewest months under this option compared to others. Traffic impacts from additional congestion due to road closure would last only 3.5 years. Having road closures occur continuously would also provide some predictability for people traveling to and from the city as well as those traveling within the downtown area. They would know that for this period, they would not be able to use the viaduct and would expect to take detours or alternate routes. Because of the importance of the viaduct in moving traffic through the city, however, the shorter plan would likely cause the most severe intensity of disruptions. Light, glare, and noise would affect adjacent social resource properties and particularly residential uses to varying degrees for the full 7 years of the construction period.

Intermediate Plan

The intermediate plan would cause construction activities to last for 8 to 8.75 years, depending on whether the Whatcom Railyard is reconfigured or relocated. For this plan, the viaduct would be closed or restricted to traffic for two periods during construction. Following utility relocations, traffic use of the viaduct would be restricted for about 2 years. The corridor would be entirely closed to traffic for 18 to 27 months. Traffic use would again be

restricted for approximately 12 months. During the final 12 months of construction, the seawall would be completed and surface streets would be restored.

Implementation of this construction plan would last approximately 1 to 2 years longer than the shorter plan. The viaduct would be closed for a total of 1.5 to 2.25 years, but traffic use would be restricted for 4.5 to 5.25 years, which is longer than the 3.5-year duration under the shorter plan. Travel to and from downtown would be less predictable under this plan due to changing periods of restricted use (i.e., closure to northbound or southbound traffic). The changing travel patterns during both restricted and completely closed use of the viaduct would distribute disruptions among downtown neighborhoods. The intensity of disruptions due to changing patterns of traffic and how that would affect access to and from social resources would be less than under the shorter plan. Varying degrees of light, glare, and noise effects on adjacent social resources, particularly residential land uses, would last the entire 8- to 8.75-year period of construction.

6.2.3 Traffic Detours

First Avenue S. Detour

For either the shorter plan or intermediate plan, restricted traffic use and closure of the viaduct would require the establishment of a traffic detour on First Avenue S. It is anticipated that this detour would be used for nearly the entire duration of the construction period. The use of a designated detour would help people traveling to and from downtown because it would be a predictable alternate route. This detour is adjacent to the sports stadiums and could exacerbate traffic congestion on days sports events are held.

The proposed First Avenue S. Detour also travels through the heart of a mixed-use low-density neighborhood. The Pioneer Square neighborhood and specifically First Avenue S. have many residents, including low-income and minority residents. This increased traffic and congestion on First Avenue S. would change the current neighborhood character of the Pioneer Square area, disrupt everyday activities in the neighborhood, and reduce access to social and community services. The detour route would be used 24 hours a day, which would increase nighttime noise, light, and glare experienced by adjacent residents living in upper floors of First Avenue S. buildings. Moreover, the First Avenue S. Detour would traverse the middle portion of the Pioneer Square neighborhood and effectively act as a barrier separating the three blocks between First Avenue S. and Alaskan Way surface street (i.e., the construction corridor) from the remainder of the neighborhood. The effects of the traffic detour could exacerbate adverse effects on the social

resources located along this narrow corridor immediately adjacent to the construction corridor.

Downtown Streets

During periods when use of the Alaskan Way Viaduct is either restricted or closed, it is anticipated that some drivers would use downtown streets that parallel the viaduct to drive to the downtown core as well as to drive through the downtown area and to destinations south and north of the city. It is anticipated that additional congestion would occur on First, Second, Fourth, and Fifth Avenues. Additional traffic congestion also could be experienced on arterial streets in the residential neighborhoods east of I-5 as motorists try to find alternate routes through downtown Seattle.

To manage traffic, a Construction Transportation Management Plan will be developed. This proposed plan will have six key strategies:

- Maintain or increase arterial capacity.
- Manage traffic effectively.
- Enhance traveler information.
- Effectively manage transportation demand.
- Maintain reliable transit service.
- Improve and expand transit service in affected corridors.

Therefore, in addition to increased levels of traffic, there would be improved transit service on these arterials. Because of the need to improve transit between downtown Seattle and outlying suburban areas, transit capacity would be substantially above currently levels in the downtown area. This would greatly benefit travelers within the downtown area. It is anticipated that this would improve access to and from downtown social resources. In addition, efforts to increase arterial capacity may include the temporary removal of on-street parking on these key arterials to increase the number of travel lanes. This would further reduce parking availability in the downtown core and may encourage motorists to change modes of transportation. The increased traffic congestion, however, is not anticipated to adversely affect residential areas of downtown because these arterial routes do not traverse predominantly residential neighborhoods.

Belltown Neighborhood

Temporary short-term traffic detours would also be required in the Belltown neighborhood for the option to widen both curves of the Battery Street Tunnel. To do this construction work, the roof of the tunnel or "lid" would need to be removed. For the south portal, an estimated 300 feet of the lid would be removed, and an estimated 1,000 feet of the lid at the north portal would be removed. As a result, First and Second Avenues could be temporarily closed, and at the north end, Fourth, Fifth, and Sixth Avenues

and Denny Way may be closed. The closure of these streets, especially if work on both portals were to occur concurrently, would adversely affect the surrounding residential neighborhoods to a greater extent than the construction impacts described in the Draft EIS. In total, traffic flow through the Belltown neighborhood could be substantially affected for an estimated 15 months.

6.3 Elevated Structure Alternative

The Rebuild Alternative evaluated in the Draft EIS did not include any improvements to the Battery Street Tunnel or Aurora Avenue N. The Elevated Structure Alternative includes such improvements. As such, the construction impacts to social resources now extend through the Belltown neighborhood and along Aurora Avenue N. The construction of the Elevated Structure Alternative, including the option to relocate the Whatcom Railyard, is proposed using the longer plan. This is the same construction plan evaluated in the Draft EIS. The Elevated Structure Alternative also incorporates the Broad Street Detour, which would increase traffic congestion and noise along the Broad Street corridor.

6.3.1 Improvements to Aurora Avenue N.

For the Elevated Structure Alternative, there is only one proposal for the north section—the Partially Lowered Aurora Option. The construction effects for this design would be the same as described above in Section 6.2.1.

6.3.2 Construction Plan

The Elevated Structure Alternative assumes use of the longer plan. Though this is the construction plan evaluated in the Draft EIS, aspects of this plan have changed. Under the Elevated Structure Alternative, the construction period is anticipated to last 10 years. This is 1 year longer than described in the Draft EIS and up to 2 years longer than construction for the Tunnel Alternative. The staging of the construction activities following utility relocations would include 3 years of restricted use of the Alaskan Way Viaduct, only 3 months of closure, and another period of restricted use lasting 3.75 years. Though total closure would be limited to only 3 months, the shortest duration of any of the alternatives, the total period of restricted use would be 84 months or 7 years. This duration is substantially longer than either the shorter plan (42 months/3.5 years) or the intermediate plan (54 to 63 months/4.5 to 5.25 years). As such, access to and from the downtown area as well as access within the downtown area to social resources would experience the longest disruption of any of the plans. The use of alternate routes would also be less predictable considering that proposed construction for this alternative would require several passes through the project

corridor—more so than with either plan for the Tunnel Alternative. As a result, neighborhoods would be disrupted by construction activities for multiple periods. In all, the longer plan would have the longest construction duration, and adverse effects would be distributed at a lower level but affecting a larger area than for the other construction plans.

6.3.3 Traffic Detours

First Avenue S. Detour

The use of a traffic detour on First Avenue S. would be required for the longer plan. The effects of this traffic detour are described above in Section 6.2.3.

Broad Street Detour

Unique to the longer plan is the establishment of a traffic detour on Broad Street. This detour would be required when construction is occurring on the Battery Street Tunnel. For the Elevated Structure Alternative, the use of the Broad Street Detour is anticipated for up to 4.5 years. The effects of this traffic detour are described in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum. The primary concern considers that despite mixed land uses adjacent to this arterial roadway, the neighborhoods to both the south and the north are predominantly residential. The relatively long duration of the use of Broad Street as a detour route would adversely affect these residential neighborhoods. One mitigating factor is that Broad Street is already a wide, busy arterial roadway that forms the boundary between the Belltown and Uptown (Lower Queen Anne) neighborhoods.

Downtown Streets

Under the longer plan, motorists would use a number of downtown streets that parallel the Alaskan Way Viaduct to access downtown destinations, and to bypass the downtown area for destinations to the north and south of Seattle. The effects of the use of these downtown streets would be similar to those described above in Section 6.2.3.

This Page Intentionally Left Blank

Chapter 7 SECONDARY AND CUMULATIVE IMPACTS

This chapter discusses potential secondary and cumulative effects of the AWV Project. Secondary effects are generally removed in time and distance from the proposed project. Cumulative effects are the additive effects of the proposed project with other reasonably foreseeable actions. For this project, these effects would occur during or following the 7 to 10 years of construction associated with the Tunnel (Preferred) and Elevated Structure Alternatives. This period includes an estimated 30 months at the start for utilities relocations, which were not considered part of the estimated 7.5 to 11 years of construction evaluated in the Draft EIS.

7.1 Secondary Impacts and Benefits

Please refer to Section 7.1 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

The 2004 technical memorandum described a number of potential secondary effects of the Draft EIS alternatives. The Build Alternatives evaluated in this technical memorandum, the Tunnel and Elevated Structure Alternatives, would have very similar types of secondary adverse and beneficial effects. The construction of these alternatives may affect the long-term desirability of existing properties or the redevelopment potential of properties. A key factor affecting such changes would be the presence or absence of an elevated roadway structure along the Seattle waterfront and the long-term potential to develop an attractive, landscaped waterfront boulevard. Changes in access routes and ramps to and from SR 99 would also play a major role. These changes would have mixed effects on neighborhood cohesion.

One important difference between the Draft EIS alternatives and the updated Tunnel and Elevated Structure Alternatives is the amount of land acquisition in the Belltown, Uptown (Lower Queen Anne), and South Lake Union neighborhoods in the north section, and therefore the long-term opportunities for redevelopment. The project design and construction methods for the Lowered Aurora Option would require acquisition of properties along the west side of Aurora Avenue N. between Denny Way and Prospect Street. Nearly one-half of each block would be acquired along the west side of this approximate 1-mile stretch of roadway. The extent of property acquisition would be less for the Partially Lowered Aurora Option. Widening both curves of the Battery Street Tunnel would also result in a number of parcels that could be redeveloped in the future.

Depending on parcel sizes, some parcels may be combined to meet minimum lot sizes and/or to improve the marketability of the property for redevelopment. This redevelopment would occur consistent with the City Comprehensive Plan and zoning regulations. Overall, this future redevelopment, though modest due to parcel sizes, would be an improvement considering the number of existing buildings that are in poor condition.

Because past uses along the west side of Aurora Avenue N. acted as a buffer to adjacent residential neighborhoods, especially in the section north of Ward Street, it would be important to encourage redevelopment of the remnant properties such that this buffer function is preserved. If not, future redevelopment could adversely affect the stability of the existing residential neighborhood west of Aurora Avenue N. As such, depending on the type and/or design of future development, these secondary effects along the north section could be either adverse or beneficial. The proposal to create cul-de-sacs on either side of Aurora Avenue N. at John, Valley, and Aloha Streets plus the west side of Ward Street (for the Lowered Aurora Option only) would help protect the cohesion of adjacent neighborhoods.

7.2 Cumulative Impacts

Since the publication of the Draft EIS, the nature and schedule for some of the other projects that could result in cumulative impacts have changed. A full description of these changes is included in the 2006 Supplemental Draft EIS Appendix B, Alternatives Description and Construction Methods Technical Memorandum. A summary of these changes follows:

- The Monorail Green Line will no longer be constructed, as the project was terminated due to the results of the November 2005 election.
- The Seattle Parks and Recreation Department and the Seattle Aquarium Society have proposed expansion of the Seattle Aquarium and development of a new waterfront park. Implementation of these plans is delayed pending fundraising.
- The potential redevelopment project for Pier 46 is no longer planned.
- The number and type of development projects proposed and/or going through the City's permitting process has changed. The overall scope, however, has not changed.

Despite these changes, the nature of potential cumulative impacts to social resources would be similar to those described in Section 7.2 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum.

Chapter 8 OPERATIONAL MITIGATION

This chapter describes measures that could be implemented to mitigate potentially adverse effects on social resources for the Tunnel (Preferred) and Elevated Structure Alternatives evaluated in this technical memorandum. These include adverse effects on population, housing, community facilities, religious institutions, social and employment service agencies, cultural and social institutions, government institutions, and overall neighborhood cohesion. All of the mitigation measures identified in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum, as common to the project alternatives are valid for the updated Tunnel and Elevated Structure Alternatives. The mitigation measures identified separately for the Draft EIS Tunnel Alternative also are appropriate for the Tunnel Alternative evaluated in this technical memorandum. Due to the extensive acquisition of properties along the west side of Aurora Avenue N. for both of the current Build Alternatives, additional mitigation should be considered.

In particular, the required property acquisition would displace several unique social resources. WSDOT would purchase such properties in compliance with the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. In the north section, the alternatives would displace church-related land uses and a transitional housing complex. Some of these properties have close ties to their existing neighborhood location. For these reasons, mitigation measures for the project alternatives should:

- Provide displaced property owners with opportunities to purchase remaining portions of parcels acquired for project construction following the construction of the proposed project.
- Assist displaced property owners to find replacement properties or facilities within their current neighborhoods.
- Provide appropriate housing for displaced residents of subsidized housing.

In addition, other potential mitigation measures for the full or partial acquisition of properties are still being explored and developed and will be identified in the Final EIS.

This Page Intentionally Left Blank

Chapter 9 CONSTRUCTION MITIGATION

Please refer to Chapter 9 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum. In addition, the reader should consult other Supplemental Draft EIS technical memoranda and discipline reports for new construction mitigation measures for the Tunnel (Preferred) and Elevated Structure Alternatives. New mitigation measures that would also mitigate potential construction effects on social resources include those related to the following environmental topics: transportation, relocation, land use, parks and recreation, environmental justice, economics, noise and vibration, and air quality.

Construction activities, especially along the central waterfront, would interfere with access to businesses and properties adjacent to the project on either side of the right-of-way. A primary goal of construction planning is to maintain adequate access to all businesses so they can continue to operate. As construction phasing and staging is refined in the coming months, it may be determined that it is neither reasonable nor feasible to maintain access to some businesses. If adequate access cannot be maintained, impacts to affected businesses will be mitigated under policies to be identified in the project's Business Mitigation Plan. If the provisions of the Uniform Relocation Act are met, then relocation assistance would be provided.

This Page Intentionally Left Blank

Chapter 10 REFERENCES

Please refer to Chapter 10 in the 2004 Draft EIS Appendix I, Social Resources Technical Memorandum. In addition, the following references were used to prepare this technical memorandum.

Heffron Transportation. 2002. Seattle Parking Management Study. Prepared for the City of Seattle. September 2002.

Joy, J. 2006. Personal communication of January 27, 2006. Jeff Joy, Power Engineers, member of the AWV Project Consultant Team.

PSRC (Puget Sound Regional Council). 2002. Regional economic and demographic data base modeling and forecasting. September 2002.

PSRC (Puget Sound Regional Council). 2004. 2004 Parking Inventory for the Central Puget Sound Region. November 2004.

Seattle, City of. 2003. Citywide subsidized housing list. Office of Housing.

Seattle, City of. 2005. News Advisory – "Affordable homes slated for Belltown and Central District." Found at: http://www.cityofseattle.net/news/detail.asp?ID=5757&Dept=40. Accessed on January 11, 2006.

Seattle Post-Intelligencer. 2005. "Belltown to get community center." December 16, 2005.

Seattle Times. 2004. "Sky-high bill likely for half-way house." November 15, 2004.

Seattle Times. 2005a. "Day-labor plan stirs dispute over Rainier Valley's future." February 7, 2005.

Seattle Times. 2005b. "Day-labor agency drops plan for Rainier Avenue site." May 11, 2005.

U.S. Bureau of the Census. 2003. Zip Code Business Patterns (NAICS). Data collected for the following zip codes: 98101, 98104, 98109, 98121, and 98134 at URL: http://censtats.census.gov/cgi-bin/zbpnaic.

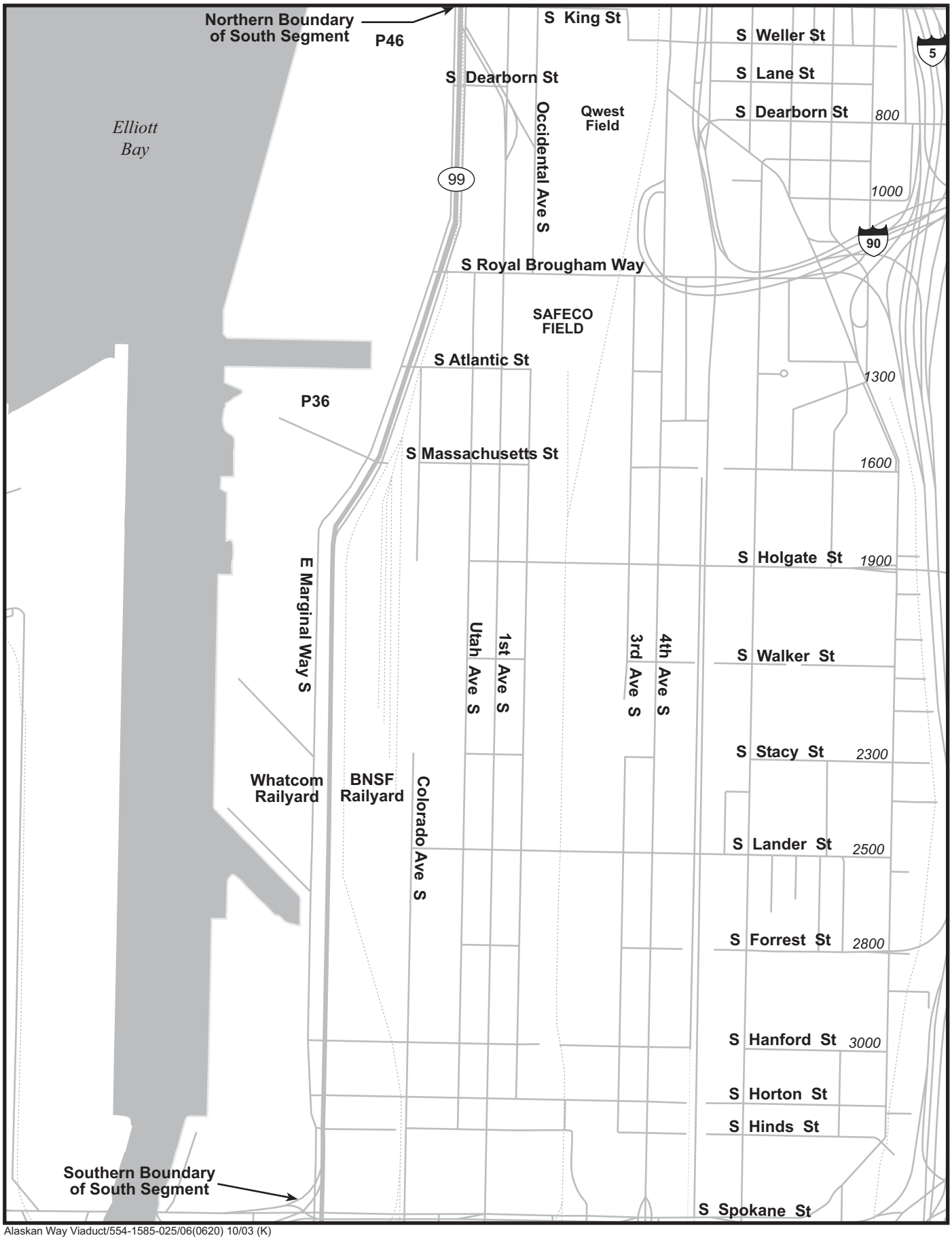
Washington Department of Social and Health Services. 2005. Information about new halfway house for sexually violent predators found at: http://www1.dshs.wa.gov/hrsa/scc/KingCo.htm. Accessed on July 23, 2005.

WSDOT (Washington State Department of Transportation), City of Seattle, and U.S. Department of Transportation, Federal Highway Administration. 2004. SR 99: Alaskan Way Viaduct & Seawall Replacement Project Draft Environmental Impact Statement. Washington State Department of Transportation, Urban Corridors Office, Seattle, Washington.

ATTACHMENT A

Street Maps of the Project Study Area

This Page Intentionally Left Blank



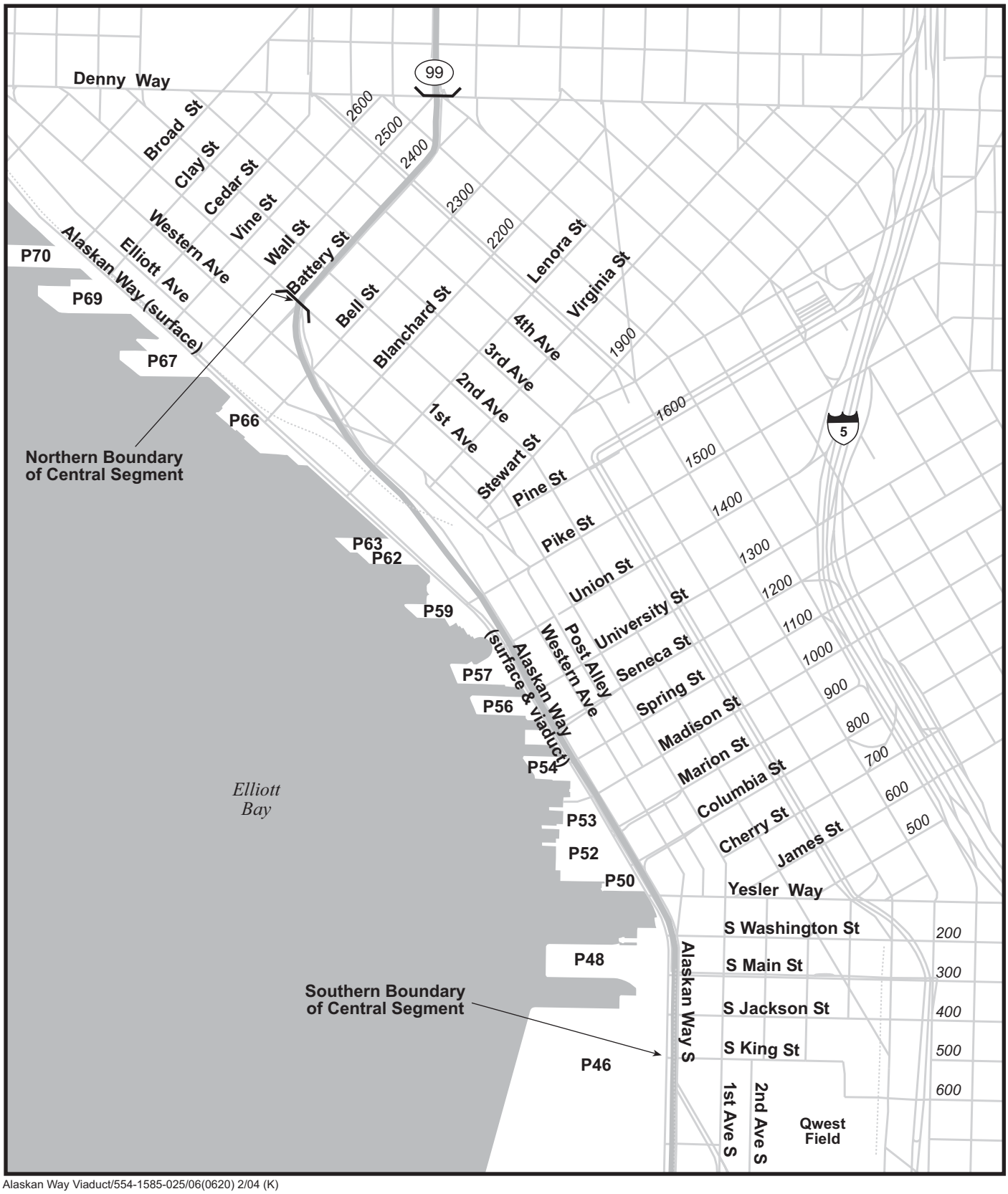
Alaskan Way Viaduct/554-1585-025/06(0620) 10/03 (K)

0 1,000
SCALE IN FEET

N

P46 = Pier 46

Appendix A-1
South Segment: Street Map



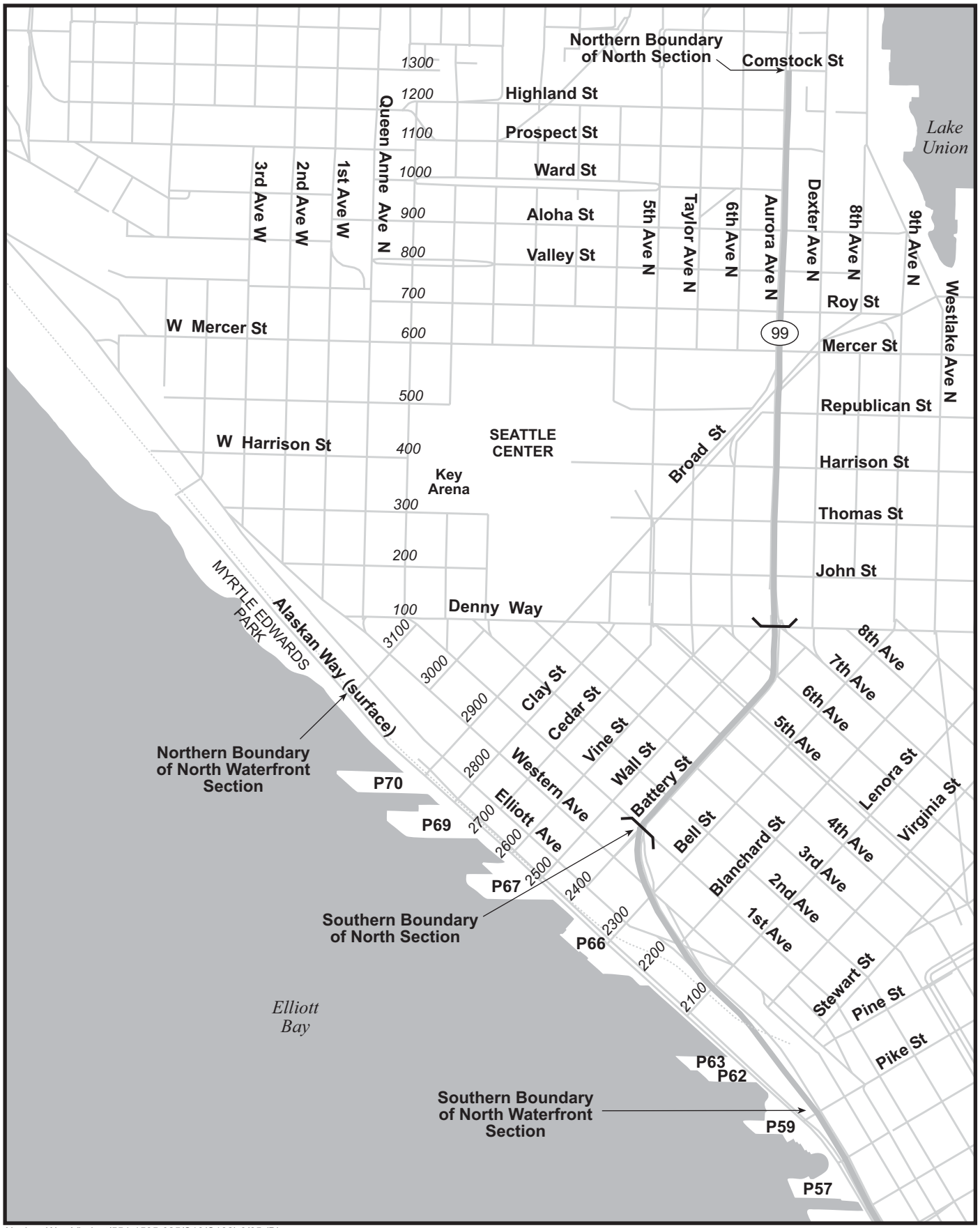
Alaskan Way Viaduct/554-1585-025/06(0620) 2/04 (K)

0 1,000
SCALE IN FEET

N

P46 = Pier 46

Appendix A-2
Central Segment: Street Map



Alaskan Way Viaduct/554-1585-025/S10(S102) 9/05 (B)

0 1,000
SCALE IN FEET

N

Note to Reader: The north terminus of the project corridor has moved north three blocks, from Ward Street to Comstock Street.

P57 = Pier 57

Attachment A-3
North Section: Street Map

This Page Intentionally Left Blank